RAILROAD GAZETTE

SATURDAY, MARCH 7, 1874.

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CATECHISM OF THE LOCOMOTIVE.

By M. N. FORNEY, *Mechanical Engineer.*

PART VII.

THE LOCOMOTIVE BOILER.

QUESTION 79. *How does the quantity of steam generated in locomotive boilers in a given time compare with that generated in the boilers of stationary and marine engines?*

Answer. Locomotive engine boilers must produce much more steam in a given time, in proportion to their size, than is required of the boilers of any other class of engines (excepting perhaps those of steam fire-engines), because the space which locomotive boilers can occupy and also their weight is limited.

QUESTION 80. *How is their steam-generating capacity increased above that of marine and stationary boilers?*

Answer. By creating a very strong draft of air through the fire and then passing the smoke and heated air through a great many small tubes, which are surrounded by water. By this means the smoke and hot air are divided into many small streams or currents which are exposed to the inside surface of the tubes to which and to the surrounding water their heat is imparted.

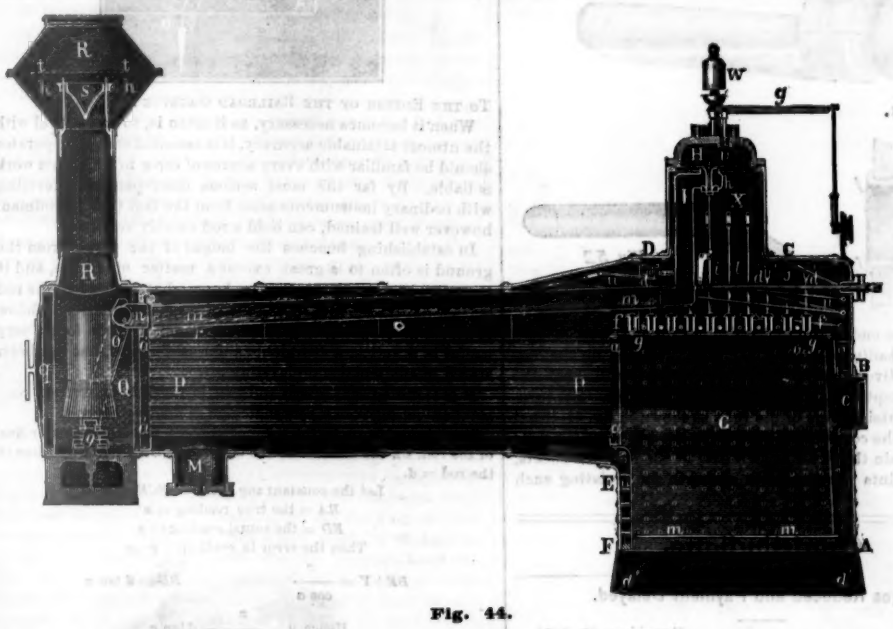

Fig. 44.

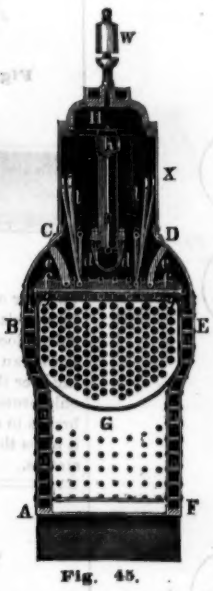

Fig. 45.

QUESTION 81. *How is the action of the exhaust steam in producing a draft in the chimney explained?*

Answer. The exhaust steam escapes from the cylinders through one or two contracted openings or exhaust-nozzles (*g*, fig. 44, also shown in figs. 41, 42 and 43*), which point directly up the centre of the chimney or smoke-stack. The exhaust steam escapes from this orifice with great velocity, and expands as it rises, so that it fills the pipe *f* (fig. 44) and the smoke-stack *R*, *R*. It thus acts somewhat like a plunger or piston forced violently up the chimney, and pushes up the air above it, and, owing to the friction of the particles of that surrounding it, carries it along up the stack, from which it escapes finally into the open air, thus leaving a partial vacuum behind it in the smoke-box. The external pressure of the atmosphere then forces in air through any and every opening in the smoke-box, to take the place of that already drawn out or exhausted from it. As the only inlet is through the tubes, to which the gases of combustion have free access from the fire-box, and as the external air can only pass through the fire-grate, and through the burning fuel, to reach the fire-box, there is a constant draft of air through the grate as long as the waste steam escapes from the blast-pipe and up the chimney. It is thus that, within certain limits, the more the steam that is required, the more the steam that is produced; for all the steam used in the engine draws in the air in its final escape, to excite the fire to generate more steam.† Sometimes one blast-orifice is used for each cylinder, as shown in figs. 42 and 43; in other cases the exhaust steam from each cylinder escapes through the same orifice.

QUESTION 82. *How much water is it necessary to evaporate in order to furnish the steam required to run an ordinary train at its usual speed?*

Answer. For an ordinary American locomotive,‡ weighing 60,000 lbs., and with cylinders of 16 inches diameter and 24 inches stroke, from 6,000 to 12,000 lbs. of water must be evaporated per hour.

QUESTION 83. *How much water will a pound of coal evaporate in ordinary practice?*

Answer. The quantity of water which is converted into steam by a pound of coal varies very materially with the quality of the coal, and the construction and condition of the boiler; but from 6 to 8 pounds of water per pound of coal is about the average performance of ordinary locomotives. It is therefore necessary to burn from 500 to 2,000 pounds of coal per hour in order to generate the quantity of steam required by ordinary engines.

QUESTION 84. *How large a grate is needed to burn this quantity of coal?*

Answer. The maximum rate of combustion may be taken at about 125 lbs. of coal on each square foot of grate surface per hour, so that to burn 2,000 lbs. we need a grate with about 16 square feet of surface.

QUESTION 85. *How much heating surface is needed for a given size of grate?*

Answer. In common practice about 50 square feet of heating surface are given for each square foot of grate. There are, however, no reasons for the proportions of either grate or heating surface which are given, excepting that it has been found that they work well in practice. It is, however, quite certain that the larger a boiler is, and the greater its heating surface in proportion to the steam it must generate, other things being equal, the more economical will it be in its consumption of fuel, or, in other words, the more water will it evaporate per pound of coal.

QUESTION 86. *Why is it necessary to use small tubes or flues in order to have the required amount of heating surface?*

Answer. Because there is a great deal more surface in a small tube of a given length, in proportion to the space it occupies, than in a large one. Thus a tube *two* inches in diameter and eleven feet long has 829 square inches of surface, and one *four* inches in diameter has 1,658 square inches, or just double the quantity. But the four-inch tube occupies *four times* as much space as the other, as it is twice as high and twice as wide. Therefore, in proportion to the space it occupies, the tube which is two inches in diameter has twice as much surface as the larger one. If we compare a two-inch with an eight-inch tube, we will find that the former has *four* times as much surface, in proportion to its size, as the eight-inch tube. As the size and weight of locomotive boilers are limited, it is therefore necessary, in order to get the requisite heating surface in the space to which we are confined, to use tubes of small diameter.

Small tubes also have the advantage that they may be made of thinner material, and yet have the same strength to resist a bursting pressure from within, or a collapsing pressure from without, as larger tubes made of thicker metal. The advantage of thin tubes is, that the heat inside of them is conducted to the water outside more rapidly than it would be through thicker metal, which is important when combustion is as rapid as it is in locomotive boilers.

The reason tubes of smaller diameter than two inches are not ordinarily used is because they are then liable to become stopped up with cinders and pieces of unconsumed fuel.

QUESTION 87. *How is the fire-box of a locomotive constructed?*

Answer. It usually consists of a rectangular box (*G*, figs. 44 and 45) about three feet wide‖ and, for the size of engine we have selected as an example, about five or five and a half feet long inside. This box is composed of metal plates, either iron, steel or copper, which, excepting on the front side, are from 5-16 to ⅝ of an inch thick. This box is called the *inside shell* of the fire-box, and is surrounded by another shell, *A*, *B*, *C*, *D*, *E*, *F*, of either iron or steel plates, of about the same thickness as those composing the inside. This is called the *outside shell* of the fire-box, and, as already explained, is so much larger than the inside that there is a space, called the *water-space*, from 2½ to 4½ inches wide, on all the sides of the fire-box between the inner and outer plates.

The top, *g*, *g*, of the inside shell, which is called the *crown-sheet* or *crown-plate*, is flat, whereas the outside shell is arched, as shown in fig. 45. To the front plate, of the inside shell the tubes *a*, *a'*, *a*, *a'* (figs. 44 and 45) are attached. For this reason its thickness is usually made greater than that of the other plates, and is usually from ⅝ to ¾ of an inch. The edges of one of the plates at each corner of the fire-box, when they are united together, as shown in fig. 42, are bent at right angles, and the other is fastened to it with rivets from ⅝ to ¾ of an inch in diameter.

The inside and the outside shells of the fire-box are united to each other by a wrought-iron bar or *ring* (*A*, *F*, figs. 44 and 45), which completely surrounds the inner shell and closes the water-space between the two shells. This bar is bent and welded to the proper form, to extend around the bottom of the inside fire-box, and it is riveted to both shells. The water in the water-spaces is in free communication with the rest of the water in the boiler; and thus the flat sides of the respective shells of the fire-box are exposed to the full pressure of the steam, which tends to burst the outside shell and to collapse the inside one. These flat sides, by themselves, would be unable to resist the strain upon them, but as the strain upon the respective fire-boxes is in opposite directions, and necessarily equal for equal areas of surface, tie-bolts, *n*, *n*, *n*, *n*, figs. 44 and 45), or, as they are called, *stay-bolts*, which are from ¾ to 1 inch in diameter, are screwed through the plates at frequent intervals, usually from 3½ to 4½ inches apart, so as to connect the two fire-boxes securely together, the ends of the stay-bolts being also riveted or spread out by hammering so as still further to increase their holding power. These bolts, owing to the expansion and contraction of the boiler and other strains to which they are subjected, very frequently break, and if they are made of solid bars of metal there is no way of discovering with certainty whether they are in good condition or not without taking the boiler to pieces. They should therefore be made of the best quality of wrought iron, brass or copper, and should also be made tubular, that is they should have a hole through the centre, so that when they break the water will escape at the fracture into the hole, and the leak will thus indicate the defect and danger. The latter is much greater from this cause than is usually supposed, and it is not unusual to find on taking a boiler to pieces that a large number of the stay-bolts are broken.

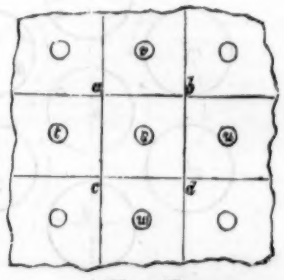

Fig. 46.

QUESTION 88. *How can the strain on the flat surface of a boiler between the stay-bolts be calculated?*

Answer. BY MULTIPLYING THE AREA IN INCHES BETWEEN ADJACENT STAY-BOLTS BY THE PRESSURE. The reason for this is, that each stay-bolt must sustain the pressure on a part of the plate to which it is attached. Thus in fig. 46 it is plain that the bolt S must sustain the pressure on one-half of that part of the plate between it and the bolts around it, or the pressure on the square *a*, *b*, *d*, *c*, whose sides are equal to the distance (4 inches) between the centres of the bolts. With a pressure of 100 pounds per square inch, the calculation would therefore be:

4
4
—
16
100
—
1,600 lbs. on each bolt.

Stay-bolts should never be subjected to a strain of more than one-eighth or one-tenth of their breaking strength.

QUESTION 89. *How do stay-bolts often fail without breaking?*

Answer. By tearing or *stripping* the thread of the bolt, or that in the plate, but oftener perhaps by the stretching of the plates between the holes. With a heavy pressure, the tendency of the plates between the holes, especially if they are heated very hot, is to "bulge" outward and thus stretch the hole in every direction until it is so large that the bolt is drawn out without much injury to the screw-thread.

QUESTION 90. *How is the flat-top or crown-sheet strengthened?*

Answer. It is sometimes strengthened with stay-bolts similar to those used for the sides, which pass through the inner and outer shells§; but usually the crown-sheet is strengthened by a series of iron bars, (*f*, *f*, fig. 44 and 45) called *crown-bars*, placed on edge, and of considerable depth, which are firmly fastened to it by T-head rivets or bolts. The crown-sheet can therefore only be crushed downwards by bending these bars, which are of great strength. They

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*The term *blast-orifice* is also commonly used to designate these parts of locomotives.

† Colburn's Locomotive Engineering.

‡ In speaking of American locomotives, we mean locomotives like that shown in fig. 40, with four driving-wheels and a four-wheeled truck, and shall so use the term hereafter.

‖ The width is dependent upon the distance between the rails, or *gauge* of the road, as it is called. The above size is for a 4 feet 8½ in. gauge.

§This method of staying crown-sheets has been extensively used on the Baltimore & Ohio and Reading Railroads, and is now very generally used in Europ

usually extend crosswise of the length of the fire-box, but are sometimes placed lengthwise. These bars bear on the fire-box only at each end, as shown in fig. 45, and are usually made with a projection, (*k*, *k*, fig. 45) which rests on the edge of the side plates. Iron ringf or washers from ⅝ to 1⅛ inches thick are interposed between the plate and the bars at the points where the bolts or rivets which secure the rivets pass through. This permits the water to circulate under the bars, and prevents the crown sheet from being burnt or overheated, as it would be if the water were excluded from the whole under-surface of the crown-bars. ¶The crown-bars are also attached to the outer shell and the dome by *braces e, e, l, l.*

The opening *c*, fig. 44, at the back end is for the door through which fuel is supplied to the grate.

QUESTION 91. *How are the grates constructed?*

Answer. They are generally made of cast-iron bars, and for burning coal are usually arranged so that the fire can be shaken by moving the bars. For burning anthracite coal, the grates are sometimes made of wrought-iron tubes, through which a current of water circulates to prevent them from being overheated.

QUESTION 92. *How are cinders and burning coals prevented from falling through the grate upon the road?*

Answer. By attaching a sheet-iron receptacle or ash-pan (*b'*, *b'*, figs. 44 and 45) as it is called, under the grate, which it completely encloses from the outside air. This then serves two purposes, as it is often important when the engine is standing still to prevent any access of air to the fire-box, and therefore the ash-pan is made to fit tightly to the fire-box, Suitable doors or *dampers* as they are called, are placed in front and behind, and sometimes on the sides, which can be opened or closed to admit or exclude air as may be needed.

QUESTION 93. *How are the tubes or flues of a locomotive arranged?*

Fig. 47.

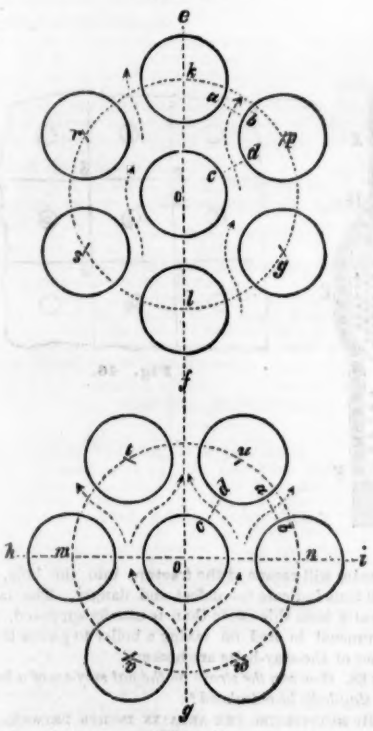


Fig. 48.

Answer. They are fastened into accurately drilled holes in the tube sheet (*a*, *a*, figs. 44 and 45), which forms the front of the fire-box, and in similar holes in a plate (*a'*, *a'*, fig. 44), which forms the front end of the cylindrical part of the boiler. They thus connect the fire-box with the smoke-box. The tubes are arranged so that each tube will have a space of from ⅝ to ⅞ of an inch between it and those adjoining. The position of the holes for the tubes in relation to each other is determined by describing from the centre of one tube (*o*, fig. 47) a circle with a radius, *o*, *k*, equal to the sum of the diameter of a tube and the distance which they are intended to be apart, and then subdividing this circle with the radius into six parts, *k*, *r*, *s*, *l*, *g* and *p*. Each point of subdivision and also the centre, *o*, of the circle will be the centre of a tube. By drawing them from these centres it will be found that the distances *a b*, *c d* will be the same between all of them. By describing circles from the centres of the outside tubes and subdividing the circles as before the position of other tubes will be determined around those first laid down. This can, of course, be carried out indefinitely. A difference in the arrangement of the tubes will be observed if, when we subdivide the first circle shown in fig. 47, instead of commencing from the intersection of a vertical line we begin from a horizontal line, *h*, *i*, as shown in fig. 48. In the former case the tubes are said to be in *vertical rows*, and in the latter in *horizontal rows*. It is apparent from the figures and as shown by the arrows that the water can circulate in ascending currents more freely when tubes are arranged in vertical rows than when they are arranged horizontally.

QUESTION 94. *How are the tubes fastened and made water-tight in the tube-sheets?*

Answer. They are inserted into the holes drilled to receive them, and the ends are allowed to project about a quarter of an inch beyond the tube-sheets. A tapered plug, fig. 49, is then driven into the tube, to expand it so that it will fit the hole. A tool is used called a *tube-expander*, fig. 50, which is what might be called an expanding plug, consisting of a number of sections, *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, held together by a spring clasp, *s*, which embraces them, as shown in the engraving. This plug when the sections are drawn together is inserted into the mouth of the tube, and the tapered plug, *p*, *p*, is then driven into the opening left in the centre of the cluster of sections, which are thus expanded. By this means, the ridge *a*, *b*, *c*, *d*, expands the tube at the inner edge of the tube-sheet, forming a ridge or corrugation, as shown at *o*, *o*, fig. 51. At the same time the shoulder *j*, *k*, *l* on the tool expands the outer edge of the tube, somewhat as is shown at *f*, *f*, fig. 51. By repeating this process, and slightly turning the expander each time, the tubes can be made perfectly water-tight. There are other forms of tube-expanders, but the one described, known as Prosser's expander, is more generally used than any other. In many cases, after the tubes are expanded with the tool described, the outer edge is turned over still more with what is called a *thumb tool*, fig. 52, probably from its resemblance in form to a man's thumb. By placing the curved shoulder *a* in the end *f*, fig. 51, of the tube it is turned over, somewhat in the form shown in the engraving, by repeated blows of a

Fig. 49

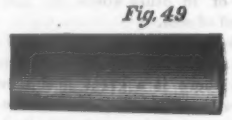


Fig. 50.

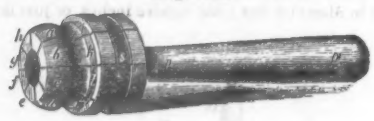


Fig. 51.

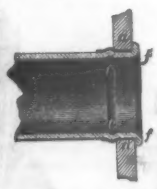


Fig. 52

hammer on the end of the tool. Copper ferrules, represented by the black shading *a a*, are also much used now on the outside of locomotive tubes, and it is said that with them the joints can be kept tight much easier than without. By turning over the outside edge of the tube as shown in fig. 51, it not only protects the copper ferrule, but, as the tubes must act as braces to sustain the pressure of steam in the flat tube-sheets, it gives the joints the requisite strength for resisting such strains.

¶Colburn's Locomotive Engineering.

Contributions.

Wages Reduced and Payment Delayed.

FEBRUARY 25, 1874.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I would state by way of introduction that I am an employee of the Tasty, Wealthy & Watchful Railroad, a great trunk line, doing a large business, notwithstanding the panic and the consequent financial pressure. As I often see in your widely circulated paper questions pertaining to railroad affairs, I wish to ask through that medium one or two questions, answers to which many employees will impatiently look for.

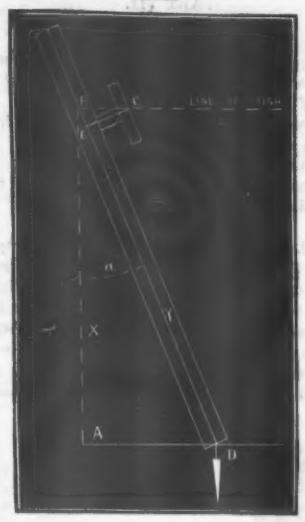
To begin with: How is it that our road, although one of the first to cut down and one of the least injured by the panic, still has nothing to say about restoring our wages to the old rates? The January reports show that the net profits are greater now than at same date last year. As we were "cut" on account of the *supposed* great falling off of business, now that freights have advanced and are plenty, that takes away entirely the aforesaid reason.

Again: Our pay, which is due the last day of the month, and which ought to be paid certainly by the 15th of the following month, is now withheld until nearly the close of the third month following; or, in other words, money earned in the first week in January will, at the present rate, be paid the last week in March.

The injustice of this may not be apparent at first sight, for the loss of interest is but a small matter, comparatively speaking; still, to us who can barely make both ends meet it would be quite an item, and certainly must be a very nice plum to those who get it; as the "cut" roll of December amounted to upward of $92,000. The worst feature of the case is, if we credit the road somebody must credit us, and they make us pay roundly for it. My neighbor, who is employed by the Quiet, Meagre & Puny Railroad (a short line of some 75 miles) tells me where I can get bargains in groceries, and advises me to go with him and not pay such large bills. I gladly avail myself of his offer and go around with him to the store. While waiting to see Mr. Sharpe, a fireman of the Cheapest, Best & Quickest Railroad comes in and buys a few dollars' worth at prices far below what I have been paying. I inwardly congratulate myself on having found such a good place to trade. Our fireman, not having been cut down and getting his pay within ten or at most fifteen days after it is due, pays cash for all he buys, knowing that even poor and ragged cash is better than the best of credit. I receive an introduction, state my business, and being naturally rather proud of my connection with a road of the magnitude of the Tasty, Wealthy & Watchful, I incidentally mention it. I see at once a change in the genial grocer; he blandly informs me that he would be very happy, but—if—and, etc., etc., etc. In short, I find if I was employed by the Quiet, Meagre & Puny, or any other one-horse road that paid, I would be much better off. I am obliged to go back to Mr. Pinchem and pay from 30 to 50 per cent. more for my groceries than I would have to pay if I had the cash out of which I am very unjustly defrauded. The conundrum is, how can we get our just dues?

E. C. CENTRIC.

Eliminating in Leveling the Error from Want of Perpendicularity in the Rod.



TO THE EDITOR OF THE RAILROAD GAZETTE:

When it becomes necessary, as it often is, to run a level with the utmost attainable accuracy, it is essential that the operator should be familiar with every source of error to which his work is liable. By far the most serious discrepancies in leveling with ordinary instruments arise from the fact that no rodman, however well trained, can hold a rod exactly vertical.

In establishing benches the height of the target from the ground is often to a great extent a matter of choice, and it therefore becomes important to know what reading of the rod is least liable to error from want of perpendicularity. Below is given the result of a calculation which I have found very useful in practice, and which, as far as I know, has not been stated in any treatise on leveling:

It is assumed that every rodman is *liable to a certain constant variation from a perpendicular in holding the rod.*

Let *D* in the figure be the point of support, and *DB* the center line of the rod, *CE* the distance of the target-face from the center line of the rod = *d*.

Let the constant ang. $ABD = BCE = a$

BA = the true reading = x

ED = the actual reading = y

Then the error in reading = $y - x$

$$BE + Y = \frac{x}{\cos a} \qquad BE = d \tan a$$

$$\text{Hence } y = \frac{x}{\cos a} - d \tan a$$

$$\text{and } y - x = \frac{x}{\cos a} - d \tan a - x$$

$$\text{or } y - x = \frac{(1 - \cos a)\, x - d \sin a}{\cos a}$$

$y - x$ will, therefore, become zero when

$$(1 - \cos a)\, x - d \sin a = 0$$

or when

$$x = \frac{d \sin a}{(1 - \cos a)\, x} = d \frac{\sin a}{\text{versin } a}$$

Determining from experiment the most probable value of the angle *a*, and knowing the value of *d*, we can by this formula estimate that reading of the rod (*x*) at which there will be no error from an inclination of the rod = *a*.

Suppose, for example, the angle *a* to be 3° and the value of *d* to be 1-10 ft., then the most accurate reading will be

$$x = \frac{\sin 3^\circ}{10 \times (1 - \cos 3^\circ)} = 3.9 \text{ ft.}$$

N.

"The Credit Mobilier."

TO THE EDITOR OF THE RAILROAD GAZETTE:

The article on this subject in *Scribner's Monthly* for March claims attention, partly for the magazine in which it appears, but greatly for the ingenious manner in which the author has *twisted* the "Statement of Thomas C. Durant in reply to the testimony of John B. Alley"—published about a year ago—and the "facts" he has supplied to the public. We first learn that "Government further offered to lend it [the Union Pacific Railroad] $16,000 a mile through all the level of the prairies; $32,000 a mile for three hundred miles on the easterly slope of the Rocky Mountains and the westerly side of the Sierra Nevada, and $48,000 a mile for the distance between these two slopes." We are subsequently told of the first one hundred miles west of Omaha that "Government was offering $32,000," and of the eastern slope of the Rocky Mountains "Government offered $64,000 a mile for a large part of the way and $96,000 for the remainder, the land grant to be thrown in as additional." Now Mr. Jacob Blickensderfer, Jr., C. E.—whose able and successful search for the eastern base of the Rocky Mountains has lately been so happily described by a brother engineer—thought, as did the Credit Mobilier, that the subsidy of $48,000 a mile commenced at the eastern base, (*a*) but probably none of them suspected that the permission of the

Government to issue their own bonds at the rate of $16,000, $48,000 and $32,000 per mile was at all in the light of a gift. But if he is misty in discussing subsidies, he comes out very strong in regard to the land grant, which is described as "a land grant of twenty millions of acres; estimating the land at its minimum price of $2.50 an acre, it was worth $50,000,000; estimated at the actual selling price at $5 an acre it was worth $100,000,000."

Any one who has ridden over the road does not require to be told that from the North Platte to Ogden, with the exception of a few acres on the Weber River, there is no arable land; and if within fifty years the company is able to sell all its lands at an average of ten cents per acre it will do better than many who are conversant with them think possible. The large body of rich land near Corinne, with so much of the road as secured the trade of Utah, Montana and Eastern Idaho to the Union Pacific Company, was sacrificed—it is generally understood—to the "superior shrewdness and business reputation" of those who managed the road shortly after its completion; the loss of control of the Cheyenne & Denver branch also goes to show the clear-headedness of the same management.

It is a great pity to spoil a very good story, one which reflects honor on the profession generally, as told in the following extract: "When Mr. Dey found that this part of the road was to be let to Hoxie at $50,000 per mile, for work which he knew could be done for $30,000—this difference of $20,000 a mile amounting to $2,000,000 on the first 100 miles, and to $5,000,000 on the 246 miles—he resigned his position as Chief Engineer, with a noble letter to John A. Dix, President of the road. He closed that letter with this statement: 'My views of the Pacific road are, perhaps, peculiar. * * * * I need not expatiate on the sincerity of my course, when you reflect upon the fact that I have resigned the best position in my profession this country has offered to any man.'"

But Mr. Dey was never Chief Engineer of the Union Pacific Railroad, (*b*) for, in a published report of the company for the year 1864, he, under date December 30, signs himself officially "Engineer in charge of Surveys, Union Pacific Railroad." (*c*) How much charge he had may be inferred from the fact that the heads of parties in the field addressed their reports directly to Dr. Durant. (*d*) He undoubtedly had some charge of construction, but a foreman by the name of Henry appears to have had charge of Mr. Dey. (*e*) The story of how Mr. Dey located and commenced to build on a 79.2-feet grade between Omaha and the Platte, differing from Colonel Seymour, the Consulting Engineer, who thought a 40-feet grade would be attainable and preferable, and the joining of Mr. Dey to the sore-headed ones of Omaha is all told in the report of Colonel Simpson. From which it seems that while Mr. Dey's views were undoubtedly somewhat "peculiar," he hardly held the best position in his profession this country had offered to any man, or that the turpitude of the Hoxie contract was the only cause for the "noble letter."

The writer seems to have mistaken the position held by "General Grenville M. Dodge, M. C., C. E.," in stating that he was Engineer in Chief of the construction corps of the Union Pacific Railroad. That eminent Credit Mobilier negotiator and Indian supply contractor had no charge of the construction corps of the Union Pacific until after the completion of the road. He was appointed after the resignation of Mr. Dey—those who know of his experience in the field and in the House can best judge why—Chief Engineer of the company. As such he had charge of making the location (*f*) (and such locations as he did make were not regarded as final) (*g*) and estimating the number of miles completed by the Credit Mobiler. (*h*) The construction was under the charge of Samuel B. Reed, who was Engineer and General Superintendent of Construction, (*i*) and it is due to his energy, ably supported as he was by Colonel S. Seymour, Consulting Engineer, and T. C. Durant, that 535 miles of road in the Rocky and Wahsatch Mountains were completed in 384 consecutive days.

The statements regarding the profits of the enterprise and the relations between the members of the Credit Mobilier will undoubtedly never be either disproved or verified. But I trust enough has been said to show that the writer was wofully ignorant of well established and widely published facts. His statement in regard to the value of the land grant would indicate that he is "long" of those bonds, but the recital of the canard that water was transported 150 miles on *horseback* inclines me to the belief that he is only the dupe of a pitiless Western roorback.

N.

a. Statutes at Large, vol. 12, chapter CXX.

b. Report of Lieut.-Col. James H. Simpson, Corps of Engineers, U. S. A., on the change of route west of Omaha, made to Hon. James Harlan, Sec'y of the Interior, Sept. 18, 1868. Govt. printing office, Washington, 1865; p. 55 et seq.

Report of the Organization and Proceedings of the Union Pacific Railroad Company; Wm. C. Bryant & Co., New York, 1864; pp. 41–44 and appendices No. 1, No. 1 A, and No. 1 B.

c. Report of Peter A. Dey, Engineer in charge of Preliminary Surveys, to the President and Board of Directors of the U. P. R. R. Co., (no imprint). Dated Dec. 30, 1864.

d. Report of T. C. Durant, Vice-President and General Manager, to the board of directors in relation to the surveys made up to the close of the year 1864; Wm. C. Bryant & Co., 1865; Appendix, pp. 11, 12 and 24.

e. Col. Simpson's Report, p. 56.

f. Report of the Chief Engineer, with accompanying reports of Division Engineers for 1866; Philip & Solomon, Washington, D. C. 1866.

Report of Gen. G. M. Dodge, Chief Engineer, on lines crossing the Rocky Mountains; Wm. C. Bryant & Co., New York, 1867.

Report of G. M. Dodge, Chief Engineer, with accompanying reports of chiefs of parties for 1868–69. Government printing office, Washington, D. C., 1870.

g. Report of G. M. Dodge for 1868–69; p. 4, where he complains of the changes in location made by the Construction Department.

h. Statement of Thomas C. Durant, in reply to the testimony of John B. Alley, taken on the 7th day of January, 1873, before the Committee appointed by the House of Representatives to investigate charges of bribery against Members of Congress; p. 19 et seq.

i. Report of the Consulting Engineer on the Location and Construction of a Bridge across the Missouri River, dated Dec. 31, 1866. D. Van Nostrand, New York, 1867; p. 19, and statement of T. C. Durant, p. 21.

Telegraph Poles as Distance Indicators.

SUSQUEHANNA, Feb. 23, 1874.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have noticed one or two letters in your paper about telegraph poles being used as distance indicators on a railroad. It may interest you to know that the telegraph poles are used for that purpose on the Grand Trunk Railway, employees being directed to go back so many telegraph poles to protect trains instead of so many rods or portions of a mile. There is no doubt that practical directions of this kind are always more valuable than those given in yards or rods. After a pretty large experience with brakemen and firemen, I can state that quite a large proportion of them have no idea how many yards or rods there are in a mile.

Yours truly, HOWARD FRY.

The Watrous Nut-Lock.

The difficulty found in securing the nut used in fastening the fish-plate upon rail joints has brought out several inventions designed to accomplish that purpose. Among others the Watrous nut-lock, so called from the inventor and patentee, Mr. Charles R. Watrous, and of which the accompanying diagram is an illustration, is recommended by its manufacturers for simplicity, cheapness and durability.

The fish-plate and bolt may be of any ordinary construction. The nut is made as usual, and in addition one or more V-shaped grooves are made across the lower or inner surface. When the nut is firmly screwed up in the ordinary manner, a small key made of cast-steel, square and slightly tapering in form, is driven into one of the grooves or channels, and its opposite corner presses forcibly against and cuts slightly into the fish-plate, thus preventing the least movement or loosening of the nut.

When preferable the grooves may be produced in the fish-plate, allowing the key to cut slight grooves in the adjacent surface of the nut. This device may be also applied under the head of a bolt to prevent the whole bolt from turning. The key may be removed by driving it backward with a proper set. It is desirable to have two or more grooves in the nut, for if there is but one, in the case of replacing after removal for any cause, the key might be driven so near its former position that it would become loosened by its tendency to run in the old groove.

The small cost of this nut-lock is readily apparent, and its durability is said to have been well established by sufficient tests.

FIG. 1.

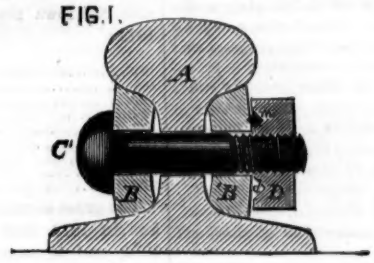
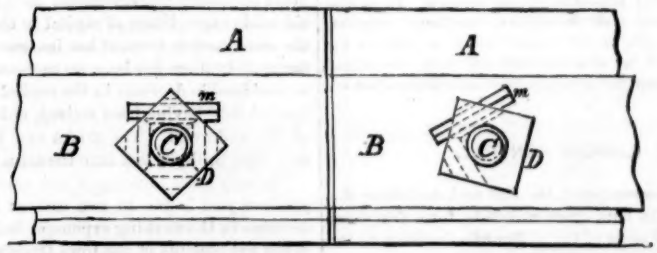


FIG. 2.



A. Section of track. *B.* Bolt. *C.* Fish-plate. *D.* Nut. *E.* Groove for the key. *K.* Key.

Transportation in Congress.

In the Senate on the 3d:

Mr. Stewart, of Nevada, from the Committee on Railroads, reported with amendments the bill introduced by him January 26, to provide for the incorporation and regulation of railroad companies in the Territories of the United States. Placed on the calendar. The bill provides that any number of persons, not less than five, may become a body corporate for the purpose of locating, constructing and operating a railroad in any of the Territories, except the Indian Territory, and after complying with numerous requirements which are elaborately prescribed for the organization, etc., of the corporations, shall have the right of way through the public lands to the extent of 100 feet on each side of their located lines of road, as shown by maps to be filed with the Secretary of the Interior.

The Chair laid before the Senate the resolutions of the Kansas Legislature, favoring the enactment of a law by Congress declaring railroads common carriers, and asking that freight charges be regulated.

In the House on the 3d:

Mr. McCrary, of Iowa, who reported the bill from the Committee on Railroads and Canals, addressed the House in explanation and advocacy of the bill. The bill related, he said, exclusively to inter-State commerce, and he asserted it to be the right and duty of Congress to regulate such commerce. It provided two things only in the nature of reformation: First, that persons engaged in railroad commerce shall not make unreasonable or extortionate charges; and, second, that they shall not make unjust discrimination in the matter of charges. The bill was, therefore, declaratory of the common law itself. It had not been prepared in any spirit of hostility to railroads. It required nothing from them that was not fair, just and reasonable. It required from them only that which the common law as it stood now and from time immemorial required of them. He quoted from the highest judicial English authorities as to the rights, powers and duties of railroads as public carriers, and as to the authority of governments to regulate them, and argued that the power of Congress over inter-State railroads was plenary and unlimited, except where limitations were imposed by the Constitution, and was equal in extent with the power of any single government over common carriers.

Mr. Arthur, of Kentucky, a member of the Committee on Railways and Canals, followed in a speech against the bill, as being a proposition in the nature of an experimental explorer of the elasticity of Constitutional government. He quoted from the debates on the Constitution, and from the decision of Chief Justice Daniels to show that the object of giving Congress the power to regulate commerce was to establish perfect equality among the several States as to commercial rights, and to prevent unjust and invidious distinctions which local jealousies or partial interests might be disposed to introduce and maintain.

Without taking action on the bill, which is a special order from day to day until disposed of, the House, at 4:30, adjourned.

THE SCRAP HEAP.

Novel Ways of Operating a Railroad.

The Fredericksburg & Gordonsville Railroad Company has some 17 miles of road completed from Fredericksburg, Va., to Parker's Store, which is not now operated. Some of the means devised by the people on the line to make use of the track are thus described by the Fredericksburg *Ledger:* "A gentleman residing here, who is the owner of a small stationary engine, has attached it to a flat car on the Fredericksburg & Gordonsville Railroad, and with a molasses hogshead for his water tank, runs up and down the road between this city and Parker's Store for freight and passengers.

"One of those indefatigable geniuses peculiar to the Wilderness of Spotsylvania, becoming disgusted with the tardy movements of the railroad company, and apprehensive that his hoop-poles would not be merchantable if kept much longer on hand, conceived the novel idea of hauling his poles to town on a flat car drawn by a young bull. The car was loaded with one hundred bundles of poles. There was some difficulty in teaching the bull exactly what was expected of him. The *modus operandi* was as follows: The bull drew the car up the grades and was then unhitched and mounted on a platform at the rear of the car, which then ran down grade without help. As soon as his bullship got the hang of the thing he took it very kindly, dragging the car up the grades with great alacrity, and evincing the same pleasure in riding down that is shown by boys who drag their sleighs up hill for the pleasure of riding down again."

New Car Stove.

The Chicago *Tribune* describes as follows a stove for heating cars invented by Mr. John Oliphant, which has been used on the Pittsburgh, Fort Wayne & Chicago Railway for about two months and has lately been put on a Chicago & Northwestern car:

"It is a cylinder in form, about 4 feet high and 2 in diameter. The bottom of it is a tank holding about four gallons of water. In this tank is a valve which keeps shut while the stove keeps its perpendicular, but when it loses that, the valve opens and the water pours out into the stove, completely putting out the fire. About a foot above the tank is the grate, and above it the fire, as in an ordinary stove. Unlike most stoves, the atmosphere in the car is not overheated, air being introduced from the outside in a pipe, which is regulated by two dampers, admitting as much as is required. The stove is encased within a sheet iron jacket, as it is called, leaving about six inches between the stove and it. Here the fresh air comes in and is heated, and then passes into pipes that run down the sides of the car, with a register under each seat. The warm air thus introduced into the car is pure and comes in near the floor, keeping the feet warm and not heating the air in the upper part of the car, as common stoves do."

Railroad Manufactures.

The Hinkley Locomotive Works at Boston, which have been working on three-quarters time for some months past, started on full time March 1.

The Harrisburg Car Company's shops have commenced to run full time.

The Atlantic Car Company, at Salem, Mass., has resolved to decrease the present capital stock from $120,000 to $60,000, and to issue and sell $60,000 new stock.

The St. Charles Car Works, at St. Charles, Mo., commenced operations March 1, with an order for 200 cars for the St. Louis & Iron Mountain Railroad.

The rolling mill of the Philadelphia & Reading Railroad Company at Reading, Pa., has resumed work.

The Lake Erie Forge Company at Cleveland, O., is turning out 120 car axles per day, besides coupling links and pins and other forge work. There are in the shops 23 heating and seven boiling furnaces, four trains of rolls and eight steam hammers.

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S. WRIGHT DUNNING AND M. N. FORNEY.

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Editorial Announcements.

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

THE ILLINOIS CENTRAL.

The reports of this company, the first and doubtless the most successful of the land-grant railroads, for a few years past, have indicated some of the difficulties incident to its situation. As we have frequently pointed out, railroads extending from Lake Michigan southward can carry farm produce to advantage only when there is a considerable difference between lake rates and rail rates to the East in favor of the lakes. They cannot be made to form parts of the shortest routes to the East, and when they cannot be parts of the cheapest routes, their occupation as grain carriers ceases or diminishes, if they do not carry at comparatively unprofitable rates. This was not so always; in fact it has not been so long, from the fact that until within a few years the east-and-west roads crossing the country to the Mississippi south of Lake Michigan were not numerous enough to reach much of the traffic on such roads as the Illinois Central and the Chicago & Alton, and it is later still that rail rates have been so reduced as dispute with the lakes any considerable portion of the grain traffic. But in such a year as 1872, when the rates by lake were extremely high—probably double the average rate of other years—nothing could keep the grain of Central and Southern Illinois from such railroads as the Toledo, Peoria & Warsaw, the Indianapolis, Bloomington & Western, the four or five lines of the Toledo, Wabash & Western, the Indianapolis & St. Louis, the Vandalia Line, and the Ohio & Mississippi, but the acceptance of rates which were unprofitable, or would have been unprofitable if they had not prevented the permanent diversion of a large part of the road's traffic. The leading tendency of produce traffic is eastward from all parts of the West, and the north-and-south roads suffer when they cannot profitably be used as parts of east-and-west routes; though of course the comparatively small north-and-south traffic they have secure from the east-and-west roads, and share only with the Mississippi, which, however, insists on the lion's share.

The Illinois Central is then interested in two things: the cheapening of the lake route, that it may be part of the cheap route to the East, the great market for Western products; and the promotion of Southern traffic, for which it was specially designed, and which it can carry, perhaps, better than any other Illinois road, while it has but one other formidable competitor. As far as the lake route is concerned, it can do little more than hope and encourage; but the Dominion of Canada is likely to gratify the desires of it and all the other railroads extending west and south from Lake Michigan by the improvements which will open a channel for large lake vessels to Montreal. For the other traffic, which seems to us to be less promising of large results, it has gone to work energetically by giving its aid to the new railroad which completes a route on which its cars now run into New Orleans. It has also cultivated this traffic in every way possible, and the reports for the last two years show (what few Illinoisans, certainly few Chicagoans, suspect) that *the freight movement is greater southward than northward.* The tonnage mileage for a series of years has been:

	Northward.	Southward.
1865	46,490,718	90,003,943
1866	52,381,087	82,847,696
1867	74,287,811	96,919,175
1868	122,498,852	103,414,558
1869	131,865,431	121,480,687
1870	126,042,619	139,366,802
1871	144,755,699	117,394,687
1872	129,384,044	142,906,856
1873	114,432,163	161,371,259

The first three years were just after the war, and the traffic then was largely diverted from its normal course by the conditions of that section. The later years denote a real change in the tendency of traffic on this road.

The vicissitudes of the property (the Illinois roads) for the past nine years, a period during which the earnings of nearly all other Western roads have largely increased, is shown by the following table of gross and net earnings, the latter including the net earnings of the entire business, the Iowa road having been worked at a loss until 1873:

	Gross.	Net.
1865	$7,181,208	$2,174,924
1866	6,546,741	2,175,447
1867	7,160,992	2,480,568
1868	6,797,931	2,414,975
1869	7,580,998	2,887,376
1870	7,211,553	2,857,321
1871	7,052,440	2,732,847
1872	6,613,433	2,103,107
1873	6,591,025	2,530,891

The gross earnings in Illinois are here seen to have been less in 1873 than for any other year of the nine except 1866, and to have decreased constantly since 1869. The net earnings do not so well indicate the prosperity of the Illinois lines, as they include the results of working the 400 miles of leased line in Iowa. The working of these roads as well as the equipment supplied for working in connection with several connecting Illinois lines, and the other necessary improvements have made necessary a considerable expenditure of capital in this time, during which the construction account has increased by $4,000,000; but fortunately there has been no increase but on the contrary a considerable decrease in the capital account, most of the bonded debt having been retired, chiefly with the proceeds of the land grant. The stocks and bonds outstanding are now some millions less than the actual cost of the property.

The very great increase of net earnings in 1873 over the previous year is due to two causes: First and mainly, a decrease in the working expenses; and, second, an increase in the net receipts of the Iowa Division sufficient not only to cover the rental, which has heretofore been a tax on the company, but to contribute something to the net earnings. Considering their direction and situation and the natural features of the country through which they run, the Iowa lines seem to be the best of those worked by the company; but they are in a new country, as yet but partly developed and for a long distance hardly more than beginning to be settled. So far the traffic of these has not increased very fast, however, and their earnings still less. Since 1869, in which year the newest of the Iowa roads was completed, we believe, the weight of freight forwarded has increased from 266,800 to 435,840 tons; but the shipments were less in 1871 than in the first year, and most of the increase was made last year (from 326,230 to 435,840 tons). The earnings have been as follows:

1869	$1,442,484	1872	$1,413,321
1870	1,467,405	1873	1,677,300
1871	1,348,691		

It is probable that these lines have now reached the degree of traffic which will make them always hereafter a source of profit to the lessee, while supplying a large traffic for a part of the Illinois lines. We fully expect that they will in no very long time have quite as large a traffic as the Illinois lines now have, and that it will be secure from diversion by fluctuations in lake or river rates.

THE CONVENTION OF THE BROTHERHOOD.

The special meeting of the Grand Division of the Brotherhood of Locomotive Engineers was held in Cleveland last week, as called. It was entirely secret, and almost the only thing of its proceedings certainly known is that the Grand Chief Engineer, Mr. Charles Wilson, who has held that position, was forced to resign, and that Mr. P. M. Arthur, of Albany, N. Y., heretofore the third in rank of the Brotherhood's officers, was chosen in Mr. Wilson's place. This, it is said, was done with something like unanimity, and as nearly every division had a delegate present (there were 174 in all) it is an indication that Mr. Wilson's conduct in opposing the irregular strike of December was generally disapproved.

As to what was done with regard to striking hereafter, not much more than conjecture can be given. But the reporters found early in the meeting a general disposition to take some such action, while later the conservative party was more outspoken. And the fact that the convention was in session four days indicates that either there was a strong opposition to whatever was the party in the majority, or a good deal of work was to be done in preparation for something. Near the close of the session a large number of the delegates visited Mr. Wilson at his house, apparently to testify their approbation of his administration, under which, indeed, the Brotherhood has thriven wonderfully.

It was also reported that the more conservative members were inclined to secede from the Brotherhood in case it should determine on a strike, and to form a new society, and that this had an effect in discouraging radical measures. But it is probable enough that the very men who were most angry with their executive for discouraging the strike last December, having gratified their animosity by depriving him of his position, shrunk from taking the responsibility of declaring for another strike when they saw the difficulties in the way of its success and the disastrous consequences of a failure.

We should remember, however, that it was by no means necessary that this convention should make the decision whether there shall be a strike or not. The regular method of proceeding, as we understand it, would be for the Brotherhood as a whole simply to authorize a strike, after which it would be left to the divisions concerned to decide whether or no they will strike. That is, the separate divisions are forbidden to strike until they have been authorized by a two-thirds vote of the other divisions. Having this authorization, it remains for the division to say whether it will strike, but if it does, it has the assurance of the support, material and moral, of the whole Brotherhood. It may well be that the Cleveland meeting authorized the sub-divisions where wages have been reduced to strike if and when they see fit; and that, therefore, the question remains to be settled on each road as may appear most feasible. If so, a strike may occur at almost any time on any road where wages have been reduced, and if one does occur it will probably receive support from the great body of locomotive engineers.

Representatives of the Cleveland railroads are reported to have agreed that a demand for an increase of wages would not be conceded. It is quite probable that the condition of business does not now warrant an increase of wages, that is, that the supply of this kind of labor is in excess of the demand; still, we believe that the railroad managers should listen patiently to any "demand" of the kind, though the word is certainly not a pleasant one. It should be remembered that the reduction of wages was virtually a "demand" that the men should take less wages, entirely justified at the time, doubtless, but none the less a demand, to which the employee had no other alternative than to accept or quit. A frank relation of the circumstances which prevent the acceptances of the terms requested or "demanded" by their men, and of the reasons which will probably or almost certainly make a strike unsuccessful will have their due effect with the thoughtful men, and these, to a greater extent than always appears, determine the conduct of the class to which they belong. At all events, the railroad companies would have done their duty; which is, not to be stiff-necked and autocratic, but to hear complaints calmly, satisfy just demands and explain why others are unjust. Duty both to the railroad proprietors and to the employees requires this, for a strike might and probably would be most disastrous to both.

Prompt Payment of Wages.

A correspondent who is an employe of a railroad company complains in a letter which we publish elsewhere of the long delays made in paying wages on his road, and describes some of the disadvantages of his position. Not infrequently we hear of trouble on this or that railroad, arising from long delay in paying the men's wages, and we fear that we must say that it is even a common practice for railroad companies to so manage, or mismanage, their affairs as to make no provision for prompt payment of wages.

Now it is of course possible for railroad companies, like individuals, to get into such difficulties as to be unable to pay wages or other dues. The New York & Oswego Midland, for instance, has turned out to be so unprofitable that it cannot pay its interest, its floating debt, nor even to meet the current expenses of operation at present; and the men are not paid because there is no money to pay them with, and their past-due wages cannot possibly be provided for immediately, unless there should be a sale under foreclosure of the mortgage, when they would have the first lien on the proceeds. But the cases we have in mind are those of established companies which pay their interest promptly and will undoubtedly pay their workmen, but delay the latter payments a month or two, or more. Such cases, we are sure, would occur very infrequently if the companies made it a principle that the workmen have the first right for prompt payment as well as the first lien in law in case of a failure to pay. But the fact being that the manufacturers and dealers who are creditors for the floating debt will compe

payment if their demands are not met, and can easily make a great deal of trouble; and the bondholders will foreclose if their interest is not paid promptly; while the employees cannot easily nor without risking the total loss of employment force the company to a settlement. The consequence is that the latter are left till the last, and not infrequently are brought to utter destitution by this conduct.

Consider a man who has two dollars a day for the support of himself and family. Evidently he can save little or nothing, and his calculations for meeting his expenses must be based upon the method in which he has usually been paid. If monthly, we may be sure that the recurrence of the ordinary pay-day leaves him with very little money, however provident he may be; but whether or no, if the interval between payments is lengthened to two months, the man has to live eventually on a dollar a day and such credit as he can get. Credit, it is true, he can usually get, if his company is not likely to become actually bankrupt; but living on credit is costly, and no company has a right to force its employees to do so. Moreover, the man so living is virtually in bondage. He cannot go away in search of employment or make any other effort to better himself which requires the expenditure of a little money, but must continue with his delinquent employer unless he can find work in the same place.

We do not imagine that payment of wages is often withheld for the purpose of receiving the interest on the money: that would never pay; but it is usually the result of a miscalculation as to the provision for other current expenditures, which would rarely be made was it not known that if the worst happened the men could be oppressed without much danger.

As to the raising of wages, it would be very hazardous to make any conclusion as to the ability of a company from a single month's business, or from a whole winter's business if if it was to be compared with that of the winter of 1872-73. The companies in the North, most of them, need to make a great deal more than they did then, if they are to pay wages at all; for then receipts were decreased and expenses enormously increased by the terrible weather.

Prices of Bonds in Default.

Hassler & Co. give the following quotations for railroad bonds which are in default on one or more coupons in their circular of February 27:

	Bid.	Asked.
Atchison, Topeka & Santa Fe gold 7s	..	65
Atchison & Pike's Peak gold 6s	..	50
Atlantic & Pacific land grant gold 6s	30	40
Burlington, Cedar Rapids & Minn. gold 7s	59	..
do. Milwaukee Div. gold 7s	..	50
Canada Southern gold 7s	..	70
Central of Iowa gold 7s	45	55
Chesapeake & Ohio gold 6s	55	56
do. Extension 7s	20	30
Chicago, Danville & Vincennes gold 7s	50	57½
Chicago, Dubuque & Minn. 8s	..	50
Chicago & Mich. Lake Shore 8s	..	60
Denver Pacific gold 6s	40	60
Des Moines Valley 8s	..	55
Kansas Pacific Extension gold 7s., Coupon N	..	65
do. gold 6s., Coupon D	..	64
do. gold 6s., Coupon F	..	65
do. Leavenworth Branch 7s	..	75
do. Land grant 7s., due 1876	65	..
do. Land grant gold 7s. of 1870	..	80
do. Land grant 2d mort. gold 6s	..	75
do. Income 3d mort. 7s., No. 11	..	30
do. " " " No. 16	..	20
Lake Superior & Miss. gold 7s	30	..
Leavenworth, Law. & Galveston 10s	25	35
Logansport, Crawfordsville & S. W. gold 8s	45	60
Mo., Kan. & Texas consol. 7s	..	50
Montclair, of N. J., gold 7s	40	55
New Haven, Middletown & Willi. 7s	40	55
New Jersey Midland gold 7s	52	53
do. 2d mort. 7s	..	25
New Jersey Southern 7s	..	42
New York & Os. Midland 1st mort. gold 7s	53	55
do. 2d mtge. convertible 7s	20	30
do. Extension 7s	10	30
Northern Pacific 7.3	35	37
do. Land warrants	25	..
Rondout & Oswego gold 7s	..	60
Southern Minn. construction 8s	..	60
St. Joseph & Denver Eastern Div. gold 8s	30	40
do. Western Div. gold 8s	15	21
Toledo, Peoria & Warsaw 2d mort. convertible 7s	..	67
do Consolidated 7s	..	60
Union Pacific Southern Branch gold 6s	40	50

Record of New Railroad Construction.

This number of the RAILROAD GAZETTE has information of the laying of track on new railroads as follows:

Peachbottom.—Extended westward 6 miles to a point 10 miles west of Oxford, Pa. (Of 3-feet gauge.) *Parker & Karns City.*—Completed from the Allegheny River at Parker City, Pa., southwestward 6 miles to Petrolia. (Of 3-feet gauge.) *Valley of Virginia.*—Extended from Mount Sidney southward 10 miles to Staunton, Va. *Carolina Central.*—The *Western Division* is extended westward 4 miles to Buffalo, N. C. *Paris & Decatur.*—Extended from Paris, Ill., southeast 19 miles to Terre Haute, Ind. *Wisconsin Valley.*—Extended from Centralia north by east 13 miles to Junction City, Wis.

This is a total of 58 miles of new railroad, making 161 miles completed in the United States in 1874.

THE CONGRESSIONAL DISCUSSION OF TRANSPORTATION, if we may judge by reports of the speech of Mr. McCrary by which it was introduced last Tuesday, is likely to spread falsehood rather than truth. Mr. McCrary is reported as having said that the amount received by the railroads for transporting grain in 1873 from the Mississippi Valley to the seaboard was $85,000,000 in excess of double the cost of transportation. Now, as the average expense of conducting all traffic, aside from interest on the property, is two-thirds of the receipts, while the grain traffic probably pays a smaller rate of profit than any other except coal, this statement varies from the truth something more than $85,000,000 plus half the cost of transportation. That is, working expenses being two-thirds of the receipts, twice the cost of transportation (omitting interest) would be four-thirds of the receipts, and four-thirds of the receipts is one-third of the receipts more than the actual receipts: but the cost being two-thirds of the receipts, one-third of the receipts is equal to one-half of the cost, and four-thirds of the receipts plus $85,000,000 is one-half of the cost plus $85,000,000 more than the actual receipts. This is a very elementary explanation, we confess; but we wish to bring it within the comprehension of children and Congressmen. Such of the latter as have been to school may store it away more briefly thus:

Let R=gross receipts.

Let E=working expenses, or cost, which according to experience=⅔R.

Twice the cost=$\frac{4R}{3}$

And as Mr. McCrary says that the railroads have received $85,000,000 more than twice the cost for carrying grain, Mr. McCrary's assumed R, which we will call Rm, will call for the following equation:

$$Rm=\frac{4R}{3}+\$85{,}000.$$

Or,

$$Rm-R=\tfrac{1}{3}R+\$85{,}000{,}000.$$

That is, Mr. McCrary's assumed receipts exceed the actual receipts by $85,000,000 more than one-third of the latter.

THE METROPOLITAN DISTRICT RAILWAY, which is the second in importance of the London underground railroads, is even more unprofitable than the Metropolitan, the net earnings for the last half of 1873 having been $45,000 less than the working expenses and interest charges. The experience of city underground railroads, it is evident, has been unfavorable, and as the London roads—the Metropolitan especially—have at least as large a traffic as could be hoped for one in New York, and have to pay not more than two-thirds of the rate of interest a New York road would have to pay, it is evident that a New York road, to be successful, must either be very much cheaper, or receive higher rates of fare than the London road. The cost of the London roads appear to have been excessive, though it is not safe to say that a similar road could be constructed for less money in New York; and the Metropolitan's average fare was but 5 cents per trip. While there might be no objection to twice that rate on a New York road, there is no doubt that a 10 cent fare would virtually prohibit three-fourths of the population from habitually using the road.

RESPONSIBILITY FOR PASSENGERS, on the part of railroad companies, is generally supposed to end with their safe arrival at the end of their journey; but now we are told that the Maine Legislature is gravely considering a proposition to make the railroad companies of that State responsible for the support of "such persons as they bring to towns as become paupers." It seems pretty hard to make a company thus responsible for the future solvency of any one who chooses to travel over its line; but perhaps the Legislature, which is so anxious to protect the towns, will protect the railroad companies also by allowing them to require from every purchaser of a ticket good and sufficient security that he or she will not at any future time become "town poor." Thus would justice be done to both parties, though the labors of ticket agents would be somewhat increased.

THE CHICAGO, BURLINGTON & QUINCY REPORT summarized elsewhere is the President's report only, the other parts not having reached us as we go to press. It is more encouraging than could well have been hoped, the net earnings showing a large increase and more than covering a 10 per cent. dividend on the combined stocks of the Chicago, Burlington & Quincy and the Burlington & Missouri River. The good results are mainly due, as in the case of the Illinois Central, reported elsewhere, to a material decrease in working expenses. When the other parts of the report are published we will examine it further.

NEW PUBLICATIONS.

Revue Industrielle.—This journal, published in Paris by M.M. Hippolyte Fontaine and Amede Buguet, at No. 52 Rue St. Georges, has absorbed the Belgian *Chronique de l'Industrie*, established two years ago at Brussells, which had made steady progress in value. The *Revue Industrielle* has already been published four years, as a monthly, we believe, but we have to judge of its character by these two numbers, published since the consolidation. It is a quarto of 20 pages, a little smaller than those of the RAILROAD GAZETTE, with numerous engravings. In the two numbers there are two engravings of portable steam-engines, one covering a full page of the Swartzkopf locomotive, a full-page engraving (from *Engineering*) of the cylinders of a Russian man-of-war, a double-page lithograph of a Creusot steam-engine exhibited at Vienna, and several smaller cuts. The announcement made by the editors says:

"The new journal will give every week drawings and practical information concerning industrial progress in general, and particularly concerning that of metallurgy and mechanics; it will likewise publish reports of the proceedings of the scientific societies, and the complete list, with descriptive notices, of the patents granted in France.

"Taking as a model the journal *Engineering*, which is rendering so great services to English industry, the directors of the *Revue Industrielle* will endeavor to fulfill the same programme for all countries where the French language is used. They will the more easily succeed since they will be aided by a very large number of co-laborers of different specialties, and they make a pressing appeal to engineers for communications, which will always be most acceptable."

We are hardly familiar enough with French technical periodicals to judge whether the place which the *Revue Industrielle* purposes to fill is quite empty, but we are sure that the paper may be made extremely valuable if it carries out its programme, and will be useful in this country as well as abroad. The subscription price for American subscribers is 40 francs yearly.

Report of the Ohio Railroad Commissioner.

The following is a part of the report of the Hon. O. L. Wolcott, Commissioner of Railroads and Telegraphs for Ohio:

Returns have been made to this department for the year ending June 30, 1873, by fifty corporations. A part, however, are mere formal organizations, whose roads are leased or substantially owned by other companies. Thirty-six companies are operating their own or leased lines, apparently averaging 200 miles each. The number of miles controlled by each varies, however, from 3½ operated by the Cleveland & Newburgh, to 2,061 miles by the Pennsylvania Company. The average cost of these roads per mile, including equipment, as reported, is $54,465, and varies from $9,205, in case of the Carrollton & Oneida, to $206,050, in that of the Atlantic & Great Western.

LENGTH.

The aggregate length of lines reported to this office for the year, being wholly or in part within the State, is 7,573 miles of main line and branches, and 1,680 of sidings and other tracks; total length of track, 9,253 miles. Former reports having in this aggregate included length of lines in process of construction, prevents giving the actual increase of track for the year upon these lines.

STOCK AND DEBT.

The aggregate paid up capital stock reported is $247,099,913; funded debt, $238,148,362; unfunded debt, $15,483,814; total stock and debt, $500,732,089—an increase of paid up capital stock during the year of $27,938,785; funded debt, $20,976,607; unfunded, $4,745,634; total increase of stock and debt, $53,661,026.

EARNINGS

Upon 6,197 6-10 miles operated, aggregate $74,917,263, or $10,408 per mile.

OPERATING EXPENSES

Were $53,885,608, or $7,486 per mile operated, being 71.93 per cent. of gross earnings. Net earnings, $21,031,655, or $2,922 per mile. Increase of net earnings during the year, $468,275.

MAINTENANCE.

The cost of maintenance of way and structures is $2,025,327 more than reported last year—the maintenance of cars, $2,472,658; of motive power, $168,200; cost of conducting transportation, $3,274,000; and general expenses, $910,716; a total increase of $8,850,901.

EQUIPMENT.

The equipment of these roads has also increased by 154 locomotives, 48 express and baggage cars, 46 passenger, 5,057 freight, and 1,883 other cars.

OHIO.

The aggregate length of railroads within the State June 30, was 4,163 miles main line and branches, and 1,044 of sidings and other tracks; total length of track laid with rail, 5,207 miles. This is an increase of main line and branches during the year of 376 miles, and in sidings and other tracks of 154, or a total increase of track for the year of 530 miles—it being an increase in main line and branches of 25 miles more than the aggregate construction in the State for two years previous, and gives one mile of track to each 7.67 square miles of territory and to each 512 inhabitants.

MILEAGE OF RAILWAYS IN THE STATE, SHOWING LENGTH EACH YEAR FROM 1841 to 1873, INCLUSIVE.

Years.	Length.	Years.	Length.
1841	36 miles.	1858	2,788 miles.
1842	84 "	1859	2,897 "
1843	84 "	1860	2,974 "
1844	84 "	1861	3,024 "
1845	84 "	1862	3,024 "
1846	84 "	1863	3,051 "
1847	129 "	1864	3,051 "
1848	274 "	1865	3,176 "
1849	274 "	1866	3,197 "
1850	299 "	1867*	3,214 "
1851	572 "	1868	3,256 "
1852	890 "	1869	3,324 "
1853	1,385 "	1870	3,376 "
1854	1,500 "	1871	3,457 "
1855	1,641 "	1872	3,787 "
1856	1,869 "	1873	4,163 "
1857	1,880 "		

* From 1867 each year ends June 30.

This 4,163 miles of equipped road, including 460 miles of graded road-bed and about 200 miles partly graded, in the State, is represented by $138,931,618 paid up capital stock, and $140,248,446 funded and unfunded debt, making an aggregate of stock and debt for railroad lines in Ohio of $279,180,064, or $60,389 per mile for length ironed and graded in the State.

INCREASE.

The mileage of main line and branches has increased within the year 9.67 per cent., paid in capital stock has increased 13.21 per cent., and funded and unfunded debt 11.16, making a total increase of stock and debt for the year of 12.17 per cent.

EARNINGS.

The gross earnings of the lines operated within the State for the year (3,867½ miles) were $38,175,332, or $9,871 per mile—an increase of $224 per mile over last year's earnings.

OPERATING EXPENSES.

These have largely increased, amounting in gross to $27,301,884, or $7,059 per mile, or 71.52 per cent. of gross earnings.

Net earnings are $10,873,448, or $2,812 per mile operated in the State, being $216 per mile less than reported last year. The cost of maintenance of way and structures increased during the year 15.09 per cent., maintenance of cars 68.29, motive power 2.38, conducting transportation 18.57, and general expenses 33.85 per cent. While the total increase of miles operated was but 9.18 per cent., the increase in operating expenses is 19.65 per cent.

The mileage of locomotives hauling passenger cars was 14,279,002; an increase over last year of 1,138,908 miles, or 8.37 per cent. Their mileage hauling all classes of cars was 59,582,790; an increase of 6,493,684 miles, or 12.23 per cent. The number of passengers carried within the year was 13,885,688; an increase from last year of 1,817,856, or 15.06 per cent. The aggregate earnings from passenger traffic was $17,191,912. Total mileage of passengers or number carried one mile, 605,614,937; average rate received from each passenger upon 29 roads making such report was 3.22 cents per mile; average distance traveled by each, 29.41 miles; average amount paid by each was 94.70 cents. The longest average passenger journeys are reported by the Ohio & Missis ippi Railway Company at 77.50 miles each; the Lake Shore & Michigan Southern at 69.73; the Cincinnati & Indiana, 62; Cleveland, Columbus, Cincinnati & Indianapolis, 53.70; and the Toledo, Wabash & Western, 51.89. No other line reached an average of 50 miles. The average of the rates for fare charged upon the above lines, in the order named, are 2.73, 2.59, 2.37, 2.95 and 3.34 cents per mile respectively.

FREIGHT.

There were 26,589,562 tons of freight carried within the year, an increase of 5,606,494 tons, or 26.74 per cent. over last year. The total movement of freight, or tons carried one mile, was 3,420,889,453, or an increase of 11 1-10 per cent. over last year.

The aggregate amount received for moving this freight was $53,586,343. The average amount received per ton upon 24 lines reporting was 2.34 cents per mile. Of the entire tonnage of the State, 19,384,982 tons were local and 7,204,580 through freight, or 72.90 per cent. of the freight carried within the year was local. Of this amount, 6,563,726 tons were coal. Twenty-one lines of road report coal tonnage, and eight others did not classify their tonnage up to 1st of July. Eight companies report 726,129 tons petroleum; ten report 1,014,551 tons ore; fourteen report 848,368 tons pig and other iron; fifteen report 1,510,522 tons lumber; seventeen report 1,617,642 tons live stock; fifteen report 4,018,847 tons grain, flour and other agricultural products; and seventeen report 2,569,224 tons merchandise. These aggregates would have been largely increased if all the companies had classified their tonnage. This is promised for future reports. There are 29,433 persons reported as employes upon the roads in Ohio. The amount reported as having been paid for injuries to persons in the State is $132,627; amount paid for animals killed, $33,365; for loss of goods and baggage within the year, $294,107. Eighteen companies have paid dividends ranging from 6-10th of 1 per cent., by the Cincinnati & Indiana, to 21¼ per cent. by the Cleveland & Mahoning Valley; fifteen paid upon all their stock, and three upon preferred only. The aggregate of dividends is $8,965,333, of which $708,271 was upon preferred stock. The aggregate proportion of these for Ohio amounts to $5,104,851, or 6.33 per cent. upon the capital stock of the companies declaring dividends, or 3.67 per cent. upon all the paid in capital stock of the State.

The companies report 756 miles of steel rail in use on their lines, or more than one-tenth of the entire mileage. The greater portion of this is within the State, making about one-eighth of our main lines supplied with steel rail. That this is the economical rail upon thoroughfares subjected to a large traffic, not only on account of its durability, but its power to withstand extreme cold and changes of weather, has been practically demonstrated.

* * * * * * *

There have been laid upon the roads of the State within the year 238 miles of steel rail, 558 new iron, 553 of rerolled, and 212 miles spliced and mended rails—making a total of 1,561 miles of track.

There were built also 8 iron, 91 wood and 7 stone arched bridges, aggregating 11,980 feet. 460 miles of road-bed are reported as substantially graded in the State in addition to mileage reported above, 95 miles of which has been ironed since June 30. The annexed table gives a condensed view of the growth for the past (two*) years of the various items connected with our railway system such as stock, debt, cost, length of line, etc.:

Entire Lines.	1872.	1873.
Capital stock paid in	$219,161,127.55	$247,099,912.75
Funded debt	217,171,755.12	238,148,362.04
Floating debt	10,738,179 72	15,483,814.38
Length of main lines and branches	7,408 miles.	7,574 miles
Cost of road and equipment	$388,113 494.48	$462,094,996,87
Gross earnings	65,603 078.12	74,917,763.40
Operating expenses	45,034,7 8.21	53,885,60?.22
Net earnings	20,568,369.91	21,031,655.18
Passengers carried	No. 12,068,832	No. 13,885,688
Received for passengers carried	$16,103,461.81	$17,191,911.70
Freight transported	20,983,068 tons	26,589 562 tons
Received for freight transported	$45,889,178.26	$53,586 343.12
Interest paid on bonds	9,726,359.06	12,419,773.34
Dividends paid	7,554,032.09	8,965,332.26
Proportion for Ohio.		
Of capital stock paid in	$122 721,526.87	$138,931,618.34
Funded debt	120,224,072.00	130,585,217.46
Floating debt	5,945,700.98	9,663,229.30
Total debt	126,167,772.98	140,248,445.78
Length of main line and branches laid with rail	3,767 miles	4,163 miles
Length of sidings, etc	890 "	1,045 miles
Cost of road and equipment	$206,352,895.71	$258,086,783.17
Animals killed (so far as reported)	No. 1,926	No. 2,184
Amount paid for same (so far as reported)	$45.573.46	$33,364.78
Total earnings	34,257,799.67	$38,175,332 39
Operating expenses	23,502,739.38	27,301,?84.14
Net earnings	10,755,060.29	10,873,448.22
Persons employed in operating road	No. 25,?93	No. 29,433
Per cent. of increase in Ohio.		
Of capital stock paid in	6.31	13.21
Funded debt	30.23	8.67*
Floating debt	68.66	62.52
Total debt	31.06	11.16
Length of main line and branches	9.54	9.67
Length of sidings, etc.	5.34	17.30
Cost of road and equipment	9.14	25.07
Total earnings	12.74	11.40
Cost per cent. of operating expenses	68.32	71.52
Net earnings	11.93	1.10

* In the Report five.

Report of the Chicago, Burlington & Quincy Railroad.

The property covered by this report consists of the Chicago, Burlington & Quincy Railroad, all of which except the line from Burlington to Keokuk, Iowa, about 42 miles, is in Illinois, and the Burlington & Missouri River Railroad, which is in Iowa. The two roads have been worked as one property since 1872; the latter company's road was leased and its lands and other property sold to the Chicago, Burlington & Quincy, in consideration of the latter assuming the former's obligations and agreeing to pay the same dividends on both stocks. The report gives capital accounts and operations for both roads under one head, as the interest of the shareholders in both are now identical.

The roads owned or leased by these companies are the following, and as the leased lines are virtually owned, the rentals in every case, we believe, consisting of a guarantee of their funded debts, while the lessee holds a majority of their shares, the whole property may be considered as a simple one with a single proprietorship, consisting of owners of Chicago, Burlington & Quincy and Burlington & Missouri River shares:

	Miles.
Chicago to Burlington	207
Galesburg to Quincy	100
Galesburg to Peoria	53
Geneva to Streator	67¼
Aurora to Turner Junction	13
Buda to Rushville	106¾
Mendota to Clinton	62¾
Galva to New Boston	50¾
Keithsburg Junction to Keithsburg	5¾
Burlington to Quincy	70¼
Burlington to Keokuk	42
Shabbona to Rock Falls	46¾
	825¾
BURLINGTON & MISSOURI RIVER.	
Burlington to Council Bluffs	203
Chariton to Leon	36
Creston to Hopkins	44
Villisca to Clarinda	16
Red Oak to East Nebraska City	50
Pacific Junction to East Plattsmouth	4
	443

Of this, nine miles, from Pacific Junction north to Council Bluffs, and 11 miles, from Hamburg westward to East Nebraska City, is owned by the Kansas City, St. Joseph & Council Bluffs Company, forming parts of its main line.

The present equipment of the company is as follows:

Engines	286	Way cars	115
Passenger cars	110	Refrigerator car	1
Pay car	1	Dump cars	40
Baggage, mail and express cars	63	Wrecking and tool cars	4
		Pile driver	1
Freight cars	4,132	Hand cars	407
Platform and coal cars	1,697	Rubble cars	257

The following is a condensed balance-sheet compiled from the report of the Treasurer, Amos T. Hall:

DEBIT.

Capital stock	$26,429,562 76
Funded debt	18,855,575 00
In sinking fund	256,206 95
Liabilities for branch roads	6,737,000 00
Bills payable, unclaimed dividends, unpaid accounts, etc	1,647,030 18
Sinking fund, surplus fund, etc	5,281,162 09
Total	$59,206,536 98

CREDIT.

Construction accounts	$45,869,764 53
Cost of branch roads	10,320,243 74
Interest in other corporations, etc	1,870,446 07
Bills receivable and other accounts	1,146,082 64
Total	$59,206,536 98

During the year the construction account was increased by the addition of $752,832.15; equipment account by $670,707.07. The principal items in the increase of these accounts are:

For cost of steel rail in excess of cost of iron, in Illinois	$168,520 89
For cost of steel rail in excess of cost of iron, in Iowa	86,340 82
Buildings in Illinois, principally on the new shops at Aurora	65,154 62
In Iowa	46,728 45
Locomotives	156,720 00
New freight cars	534,358 96
For new side tracks, of which there have been laid something over 17 miles	68,443 43

The capital stock was increased during the year by the issue of $1,244,100 to take the place of the same amount of Burlington & Missouri River stock, canceled by the terms of the lease, 1,375 shares being used in the adjustment of a dividend. The capital stock of the Burlington & Missouri River Company was increased by the conversion of $357,000 of its bonds into stock and the issue of stock previously subscribed and paid for to the amount of $8,280, and its bonded debt reduced by the amount converted.

The Chicago, Burlington & Quincy bonded debt was increased $19,000 by an exchange for a similar amount of Ottawa, Oswego & Fox River Valley (leased) bonds, and by the issue of $27,650 in the adjustment of fractions under the distribution of bonds to the amount of one-fourth of their holdings made to stockholders at the end of 1872 to equalize the value of their and Burlington & Missouri River bonds. The present capital account shows for the entire property $20,844 of stock and $20,183 of bonds per mile of road.

The receipts and expenditures for 1873 were:

From freight		$8,035,348 78
From passengers		2,576,061 25
From mails and miscellaneous		596,814 68
From Burlington bridge tolls		195,00 21
Total receipts		$11,405,225 92
Operating expenses, exclusive of taxes (54.19 per cent.)	$6,181,514 18	
Taxes paid, in all	253,253 64	
		6,434,767 82
Leaving net earnings for year (43.59 per cent.)		$4,970,458 10
Interest accrued and paid on bonds during the year		1,966,300 22
Leaving a balance of		$3,004,157 88
Out of which has been paid dividend No. 25	$1,250,127 33	
Out of which has been paid dividend No. 26	1,326,642 75	
Out of which has been paid rent of track and depot	57,437 44	
Out of which has been paid interest and exchange	109,867 78	
		2,744,075 30
Leaving of net earnings for the year over every liability		$260,082 58
To which add surplus at commencement of the year		3,514,272 16
		$3,774,354 74
Deduct interest on bonds accrued but not called for prior to Jan 1, 1873, but since paid		233,755 74
And there stands to the credit of income account		$3,520,599 00
The amount credited to sinking fund taken from earnings of previous years is		1,179,744 88
And this, added to income credits, makes the amount of surplus earnings		$4,700,343 88

Divided between the two roads, the earnings and expenses for two years were:

Chicago, Burlington & Quincy.

	1873.	1872.
Gross earnings	$8,252,991 94	$7,630,406 78
Working expenses	4,265,116 16	4,629,374 87
Net earnings	3,987,875 78	3,001,033 91
Percentage of expenses	51.69	60.67
Percentage of expenses and taxes		64 77

Burlington & Missouri River.

	1873.	1872.
Gross earnings	$3,152,239 98	$3 040,448 25
Working expenses	1,916,398 02	1,729,721 38
Net earnings	1,235,835 96	1,310,726 87
Percentage of working expenses	60.79	56.89
Percentage of expenses and taxes		58.04

Both Properties.

	1873.	1872.
Gross earnings	$11,405,225 92	$10,670,857 03
Working expenses	6,181,514 18	6,359,096 25
Net earnings	5,223,711 74	4,311,760 78
Percentage of expenses	54.19	59.59
Per cent. of expenses and taxes	56.41	62.95

This is an increase of nearly 7 per cent. in gross receipts, a decrease of nearly 8 per cent. in working expenses, and an increase of 21 per cent. in net earnings, which was increased to 22¾ per cent. by a decrease of $105,000 in taxes.

The working expenses would have been about 2 per cent. less but for the renewals of shops and equipment destroyed by fire in Aurora, in excess of insurance.

The net earnings after meeting all interest payments and other charges were equivalent to 10.78 per cent. on the capital stock of the two companies.

The earnings were at the rate of $10,003.62 per mile on the 825 miles of the Chicago, Burlington & Quincy, and $7,115.65 per mile on the 443 miles of the Burlington & Missouri River, or $8,994.65 on the whole length of 1,268 miles worked.

The work effected was as follows:

The whole tonnage of the line for the year amounted to 2,221,744 tons, of which there were of through freight:

Westward	196,314 tons.
Eastward	375,875 tons.
Local freight, East and West	1,649,522 tons.

The earnings upon through freight were 1 27-000 cents per ton per mile. Upon local freight, 2 45-100 cents per ton per mile.

Total number of passengers carried during the year eastward	847,389
Total number of passengers carried during the year westward	859,345
Total	1,706,734

The average amount per mile, exclusive of mileage and season tickets, was 3.023 cents.

The land grant of the Burlington & Missouri River Railroad is estimated to have amounted to 359,708 acres, the title to 26,000 of which is disputed. Of this 202,702 acres have been at an average price of $11.92 per acre, and the balance is estimated to be worth $1,872,000.

During the year 21.39 miles of steel rails were laid in Iowa and 44.17 in Illinois, making 199.71 miles now in the track. The additions to equipment consist of 10 locomotives purchased and 2 coaches, 5 baggage mails and express, 564 freight, 4 way and 60 platform and coal cars constructed. It is not expected that any considerable additions to the property will be made during the current year.

The President's report makes the following mention of the results obtained from the branch roads, the acquisition of which has been severely criticised by some of the stockholders:

"Attention is called to the branch roads. There has been a gradual and steady increase in the business of the branch roads, so-called, both in Iowa and Illinois.

"In Illinois, for the year ending April 30, 1872, the earnings on the branch roads then in operation amounted to $661,939.71; and the entire earnings of the company upon the branch road business to $1,713,633.35. On the same branches, for the year now closed, the earnings have been $905,166.40; and the entire earnings upon this branch business in Illinois, $2,049,986.27.

"The earnings on the branches of the Burlington & Missouri River Railroad in Iowa, for the year, have been $157,248.24. The entire earnings of the company on the business of all the branch roads, both in Iowa and Illinois, including those local to the branches themselves and on the main line, have amounted to $3,487,277.70, and 33 per cent. of the entire gross earnings of the company on freight and passengers. The miscellaneous earnings are not included or apportioned to the branches in the above statement; but, if included, it would not materially vary the comparative results.

"The proportion of operating expenses chargeable to those branches in Illinois has been $751,529.79; in Iowa (estimated), $122,129.64; in all, $873,659.43, being 77 65-100 per cent. of the gross earnings thereon.

"Again, the earnings of the branches and main line to and from branches, in 1873, are $3,487,277.70; operating expenses on the branches are $873,659.43; operating expenses on main line on branch business, $1,280,108.35; total operating expenses on branch business, $2,153,767.78; net earnings on branch business in Illinois and Iowa, $1,333,509.92.

"These statements will show to some extent the bearing these branches have upon the value of your property. When it is understood that these branches were built, or mainly so, by other parties, and in interests hostile to those of your road, and that they control so large an amount of business as these statements show, the stockholders can well appreciate the extent to which the business of the road would have been affected had not this company come into the ownership or control of them.

"It will be seen that these branches gather up and influence too large an amount of business to be lost without seriously impairing the property of the company; and it is certain that if these branches were not now in the ownership or control of this company this business would have been lost to it, or it would have been received under such strong competition as to have been substantially valueless. Besides, if these branches, reaching your line at thirteen different points as they do, were now in other control, and competitors instead of contributors, the effect would be that nearly the entire business of the company, both that from the branches and that coming directly into the main line, would be under such strong competition as to leave but small profit, and at many points none at all, above the cost of transportation.

"Some of these branches, both for their local business and for the amount contributed to the main line, as would be expected, are more valuable than others. But, taking them as a whole, the result shows that the policy of your company, in reference to their acquisition, has been a sound and judicious one."

General Railroad News.

ELECTIONS AND APPOINTMENTS.

—At the annual meeting of the Toledo & St. Louis Air Line Railroad Company in Crawfordsville, Ind., February 4, S. C. Wilson, G. D. Chaffee, T. S. Sprague, S. B. Stevenson, D. W. Marks, G. R. Wendling, J. Patterson, S. B. Blackwell, A. V. Rice, T. S. Gilliland, G. A. Dent, J. C. Silvers, J. Brownlee, J. V. Banta, M. B. Garten, Isaac Porter, Samuel McClure, R. Gardner and W. B. Spencer were chosen directors. The board elected S. C. Wilson, President; G. D. Chaffee, First Vice-President; T. S. Sprague, Second Vice-President; A. V. Rice, Treasurer.

—At the annual meeting of the Lake Erie & Louisville Railroad Company recently the following directors were elected: L. Q. Rawson, R. P. Buckland, G. C. Moore, Fremont, O.; C. W. Foster, C. Foster, Fostoria, O.; D. J. Corey, S. Carlin, Findlay, O.; C. S. Brice, Lima, O.; S. Medbury, Columbus, O.; W. K. Smith, J. P. Crary, Union City, Ind. The board elected L. Q. Rawson, President; Charles Foster, Vice-President; W. H. Andrew, Secretary and Treasurer; J. H. Burgoon, Superintendent; L. S. Bennett, Chief Engineer.

—At the annual meeting of the Framingham & Lowell Railroad Company recently the following directors were elected: E. Hastings, Lowell, Mass.; W. F. Ellis, Ashland, Mass.; J. W. Clark, South Framingham, Mass.; D. Wetherbee, Acton, Mass.; E. P. Carpenter, Foxborough, Mass.; H. A. Blood, Fitchburg, Mass.; L. Bliss, Worcester, Mass.; G. A. Torrey, George E. Towne, S. H. Howe, L. Nichols, Peter B. Brigham, R. Wafner, Boston. The road is leased and worked by the Boston, Clinton & Fitchburg Company.

—At the annual meeting of the Cincinnati & Baltimore Railroad Company in Cincinnati, O., February 18, the following directors were elected: W. W. Scarborough, Kenner Garrard, Cincinnati, O.; W. McClintock, Chillicothe, O.; W. H. Oldham, Marietta, O.; John King, Jr., John Donnell Smith, Robert Garrett, Baltimore. The board elected W. T. McClintock, President; Charles F. Low, Secretary; W. E. Jones, Treasurer. This is the company which constructed the Marietta & Cincinnati's entrance into Cincinnati.

—At the annual meeting of the Cincinnati & Springfield Railroad Company in Cincinnati, February 18, the old board of directors was re-elected, as follows: R. M. Shoemaker, B. H. Shoemaker, H. B. Hurlburt, H. B. Payne, J. H. Devereux, Cleveland, O.; J. N. Kinney, Seth Evans, George Eustis, Cincinnati, O.; Augustus Scheli, New York. The board elected R. M. Shoemaker, President, and M. C. Shoemaker, Secretary and Treasurer. The road is leased and worked by the Cleveland, Columbus, Cincinnati & Indianapolis Company.

—Mr. William R. Martin, formerly General Freight Agent, has been appointed Superintendent of the Kansas Central

Railway. Mr. Levi Wilson has been appointed General Freight Agent.

—The new officers of the Logansport, Crawfordsville and Southwestern Railroad Company are as follows: President, L. D. Schuyler; Vice-President, D. D. Dykeman; Superintendent, J. C. Hadley; Assistant Superintendent, A. N. Leitooker; General Freight and Ticket agent, Walter C. Hobbs; Auditor, W. H. Brown. The offices are at Terre Haute, Ind.

—The officers of the Memphis, Carthage & Northwestern Railroad Company are as follows: President, James A. Baker, St. Louis; Vice President, R. W. Wright, Oswego, Kan.; Secretary and Treasurer, Ezra Miller, Carthage, Mo.; Superintendent, E. H. Brown, Carthage, Mo.; Auditor, J. A. Hardin, Carthage, Mo.

—Mr. L. B. Jackson, late Cashier, has been appointed Assistant Treasurer of the Missouri, Kansas & Texas Railway Company. Mr. P. E. Fairbanks, late Auditor, has been appointed Comptroller.

—Mr. John Given, formerly Superintendent, has been appointed General Freight and Passenger Agent of the Keokuk & Des Moines Railroad Company.

—Mr. William Stearns has been appointed Master of Machinery of the Pittsburgh, Washington & Baltimore Railway in place of A. S. Kinsey, resigned. His office is at Connellsville, Pa.

—The office of the Superintendent of the Western Pennsylvania Division of the Pennsylvania Railroad, Mr. J. C. McCreighton, will be at Allegheny City, Pa., instead of Blairsville, as heretofore.

—Mr. E. A. Julian is General Ticket Agent of the New Brunswick & Canada Railway, with office at St. Andrews, N. B. Mr. N. B. Greathead is Cashier, with office at St. Stephens, N. B.

—Mr. A. F. Graham has been appointed Auditor and Cashier of the Milwaukee, Lake Shore & Western Railroad, with office at Manitowoc, Wis.

—Mr. E. S. Babcock, Jr., has been appointed General Freight Agent of the Evansville & Crawfordsville Railroad, with office at Evansville, Ind., in place of G. W. French, who has resigned.

—Mr. E. Ellery has been appointed Local Treasurer of the Chicago, Danville & Vincennes Railroad Company, with office in Chicago, Ill.

—Mr. Samuel G. Jones is General Manager and Acting Superintendent of the East Alabama & Cincinnati Railroad, with office at Opelika, Ala.

—At the annual meeting of the Sullivan & Erie Railroad Company at Towanda, Pa., February 5, the following officers were chosen for the ensuing year: President, John C. Welles, Athens, Pa.; Secretary and Treasurer, C. E. Parsons, Towanda, Pa.; Superintendent and Engineer, William Stevenson, Towanda, Pa.

—Sylvanus J. Macey has been appointed Receiver of the Sodus Point & Southern Railroad. His office is at Sodus Point, N. Y.

—Mr. L. D. Tuthill, formerly Superintendent, has been appointed General Manager of the St. Joseph & Denver City Railroad.

—Mr. George P. Relton has been chosen President of the Poughkeepsie & Eastern Railroad Company, in place of John F. Winslow, resigned. Mr. John O. Whitehouse is Vice-President.

—On the completion of the Louisville Extension, the General Passenger and Freight Agent's office of the Elizabethtown & Paducah Railroad will be divided, Mr. O. Breshear, now at the head of that office, becoming General Freight Agent, and Mr. James Ferrier, General Passenger Agent.

—At the annual meeting of the Baltimore, Pittsburgh & Chicago Railway Company, Illinois Division, in Chicago, February 27, the following officers were elected: President, Walter C. Quincy; Treasurer, William H. Ijams; Secretary, William Wing; directors, William Keyser, John Tyrrell, James Walsh; Chief Engineer, James L. Randolph.

—At the annual meeting of the Chicago, Burlington & Quincy Railroad Company in Chicago, February 25, the following directors were re-elected: James M. Walker, Chicago; Chauncey S. Colton, Galesburg, Ill.; James F. Joy, Detroit, Mich.; Erastus Corning, Albany, N. Y.; John C. Green, New York; John N. A. Griswold, Newport, R. I.; Sydney Bartlett, John W. Brooks, John A. Burnham, John N. Denison, John M. Forbes, Nathaniel Thayer, Boston. The board re-elected the old officers, as follows: President, James M. Walker; chairman of board, John N. Denison; General Superintendent, Robert Harris; Secretary and Treasurer, Amos. T. Hall.

—At the annual meeting of the Lehigh Coal & Navigation Company in Philadelphia, February 24, E. W. Clark was chosen President, with the following board of managers: Francis R. Cope, Francis C. Yarnall, Fisher Hazard, Charles Parrish, George F. Tyler, Philip G. Garrett, Chas. Wheeler, George Whitney, Alexander Biddle, John Leisenring, Samuel Thomas.

—At the annual meeting of the Cleveland, Mount Vernon & Delaware Railroad Company, at Mount Vernon, O., February 17, the following directors were elected: Samuel Israel, Charles Cooper, Mount Vernon, O.; William M. Orr, Orrville, O.; Isaac Harpster, Millersburg, O.; H. J. Jewett, Columbus, O.; Thomas D. Messler, William Thaw, Pittsburgh, Pa.; George B. Roberts, Philadelphia. The board elected Thomas D. Messler President in place of R. C. Hurd, deceased, and re-elected J. D. Thompson Treasurer and J. S. Davis Secretary.

—Mr. P. M. Arthur, of Albany, N. Y., heretofore Second Grand Assistant Engineer, has been chosen Grand Chief Engineer of the Brotherhood of Locomotive Engineers in place of Mr. Charles Wilson, resigned.

—James L. Devou and William M. Canby have been chosen directors of the Wilmington & Western Railroad Company in place of Joshua T. Heald and William H. Swift, resigned.

PERSONAL.

—Mr. George W. Ogelvie, General Passenger and Ticket Agent of the Keokuk & Des Moines Railroad, has resigned his position.

—Hon. Richard Borden, a director of the Old Colony Railroad Company and formerly President of the Cape Cod Railroad Company, died at his residence in Fall River, Mass., February 25, in the 79th year of his age.

—Mr. George D. Lawrence, Assistant Superintendent of the Vicksburg & Meridian Railroad, was recently presented with a handsome gold watch and chain by the employes of the road.

—Mr. Dyer Williams, Superintendent of the Cayuga Lake Railroad, has resigned his position.

—Mr. William P. Burrill, Vice-President of the New York & New Haven Railroad Company, and before the consolidation President of the Hartford & New Haven, died suddenly of apoplexy at the Allyn House in Hartford at half-past one on the morning of the 3d, at the age of 67 years.

—Mr. Joseph Jones, for ten years past Superintendent of the Car Department of the New York Central & Hudson River road, has resigned his position and will hereafter reside in Utica, N. Y. The employes of the West Albany shops met February 25 and passed resolutions expressing their esteem for Mr. Jones and their regret at his resignation. Mr. Jones has been in the employ of the New York Central over 30 years, and is a prominent member of the Master Car-Builders' Association.

TRAFFIC AND EARNINGS.

—The earnings of the Housatonic Railroad for the year ending September 30, 1873, were:

Earnings ($6,383 per mile)	$762,343
Expenses (66.18 per cent.)	504,508
Net earnings ($2,140 per mile)	$257,835

—The earnings of the Great Western Railway of Canada for the week ending February 6 were: 1874, £22,013; 1873, £21,314; increase, £699, or 3¼ per cent.

—The earnings of the Grand Trunk Railway for the week ending February 7 were: 1874, £37,000; 1873, £30,400; increase, £6,600, or 21¼ per cent.

—The earnings of the Rensselaer & Saratoga Railroad for the year ending September 30, 1873, were:

Passengers	$758,093 56
Freight	1,041,912 97
Express	43,907 34
Mails	24,225 49
Car service	22,341 92
Miscellaneous sources	75,376 30
Total earnings ($10,722 per mile)	$1,965,857 58
The expenses were:	
Maintenance of way	$323,781 31
Repairs of machinery	101,764 82
Operating the road	537,238 58
Total expenses (54.06 per cent.)	$1,062,784 71
Net earnings ($4,948 per mile)	$903,072 87

—The earnings of the Northern Railway of Canada for the year 1873 were:

Earnings of main line ($8,859 per mile)	$841,588 62
Earnings of leased lines ($1,075 per mile)	60,222 91
Total	$901,811 53
Operating expenses (64.42 per cent)	590,023 90
Net earnings	$311,787 63

The earnings of the main line show a decrease from the previous year of 1.9 per cent.

—The earnings of the Michigan Central Railroad for the third week in February were: 1874, $125,302; 1873, $103,175; increase, $22,127, or 21¼ per cent.

—The earnings of the Southern Central Railroad for the year 1873, as compared with the previous year, were:

	1873.	1872.	Increase.	P.c.
Earnings	$445,316 89	$346,444 55	$98,872 34	28¾
Expenses	284,501 34	227,004 85	57,496 49	25¾
Net earnings	$160,8 5 55	$119,439 70	$41,375 85	35¾

The earnings were $3,839 per mile in 1873, against $2,987 in 1872. The operating expenses were 63.88 per cent. of earnings in 1873, against 65.52 per cent. in 1872.

—The earnings of the Northern Central Railway for the year 1873 were:

Freight	$3,645,751 92
Passengers	897,149 32
Express	101,827 43
Mails	81,461 25
Miscellaneous	305,175 67
Total earnings ($15,872 per mile)	$5,031,365 59
The expenses were:	
Conducting transportation	$1,065,800 78
Motive power	1,106,182 24
Maintenance of way	801,779 64
Maintenance of cars	365,448 93
General expenses	88,302 50
Total expenses (68.52 per cent.)	$3,447,514 09
Net earnings ($4,996 per mile)	$1,583,851 50

As compared with the previous year there is an increase of $432,545.40, or 9⅔ per cent., in gross earnings, and an increase of $422,082.28, or 36¾ per cent., in net earnings.

—The earnings of the Erie Railway for the third week in February were: 1874, $383,881; 1873, $330,976; increase, $52,905, or 16 per cent.

—The following statement of the earnings of the Cleveland, Columbus, Cincinnati & Indianapolis Railway for the year 1873 has been published:

Earnings ($ 0,399 per mile)	$4,887,448
Expenses, taxes and interest	3,719,809
Balance	$1,167,639

ANNUAL REPORTS.

Philadelphia & Erie.

This road extends from Sunbury, Pa., to Erie, 288 miles. It is worked by the Pennsylvania Railroad Company.

The operations for the year ending December 31 were as follows:

Earnings from:	1873.	1872.
Passengers	$632,620 30	$647,274 09
Freight	3,042,806 00	3,177,548 92
Express and mails	71,937 51	72,491 07
Miscellaneous sources	94,703 39	83,438 79
Total earnings	$3,842,067 20	$3,980,752 87
The expenses were:		
Conducting transportation	$872,256 99	$841,298 21
Motive power	962,781 49	915,755 45
Maintenance of cars	396,390 03	338,028 58
Maintenance of way	1,179,882 33	1,192,943 67
Total expenses	$3,413,310 84	$3,288,025 91
Net earnings	428,756 36	692,726 96
Passengers carried	777,273	839,793
Tons of freight carried	2,164,246	2,028,568

This shows a decrease of $138,685.67, or 3½ per cent., in gross earnings; an increase of $125,294.93, or 3⅞ per cent. in expenses; and a decrease of $263,980.60, or 38¼ per cent., in net earnings. The expenses were 88.84 per cent. of earnings in 1873, against 82.60 per cent. in 1872. The gross earnings were $13,340 per mile and the net earnings $1,489 per mile in 1873, against $13,822 and $2,405 per mile in 1872. There was a decrease of 7½ per cent. in the number of passengers and an increase of 6⅞ per cent. in tons of freight.

During the first seven months of the year there was a large increase in freight business, but later a reduction in freight rates diverted much business to other lines, and the panic in September largely reduced the business. The expenses were increased by the increased cost of fuel, improvements at stations, the necessity of putting the equipment in better condition and an increase of wages of freight brakemen. The effort to build up the through passenger business has been abandoned after three years' trial.

While the cost of transporting freight was about the same as on the Pennsylvania road, the average rates have been much less. This is caused by competition at Erie and other points and the fact that the greater part of the freight is of the lowest classification. It is hoped that the completion of the Alleghany Valley's Eastern Extension during the coming season will have a good effect upon the business of the road.

The account with the lessee shows a balance in its favor and against the Philadelphia & Erie Company for the year of $1,202,228.13.

Eastern.

This company owns a line from Boston northeast to the New Hampshire line, 41.39 miles, which is continued to Portsmouth, N. H., 16.55 miles, by the Eastern Railroad of New Hampshire, and from Portsmouth to Portland, Me., 52 miles, by the Portland, Saco & Portsmouth road, both the latter being operated under lease. The company owns the Lawrence Branch, 19.66 miles; the Gloucester Branch, 17.35 miles, and several short branches in Massachusetts, the aggregate length of which is 34.70 miles. It leases the Portsmouth, Great Falls & Conway road, from Portsmouth, N. H., to Conway, 71.37 miles, and the Wolfeborough road, from Wolfeborough Junction, N. H., to Wolfeborough, 12.02 miles. The total length of road operated is 265.04 miles, of which 113.10 miles is owned and 151.94 leased. The length of the main line from Boston to Portland is 109.94 miles. Of the leased lines the Eastern of New Hampshire, the Portsmouth, Great Falls & Conway and the Wolfeborough are practically consolidated with the Eastern Company, although a separate organization is kept up.

The operations of the road for the year ending September 30 were as follows:

The earnings were:	1873.	1872.
Passengers	$1,773,909 52	$1,883,855 10
Freight	1,027,785 23	863,789 70
Expresses	50,118 84	65,875 31
Mails	25,856 35	24,9 6 40
Miscellaneous	66,063 85	50,185 35
Total	$2,943,733 79	$2,827,641 86
The operating expenses were:	1873.	1872.
Fuel	$408,076 75	$531,811 98
Maintenance of way	556,632 80	434,175 10
Locomotive power	355,477 08	315,233 80
Train expenses	466,080 81	435,462 55
Station expenses	370,386 67	286,090 47
General expenses	104,796 69	108,445 41
Insurance and taxes	79,006 43	93,526 97
Total	$2,350,457 14	$2,004,746 28
Net earnings	$593,276 65	$822,895 58

The gross receipts have thus increased $115,091.93, or 4 1-16 per cent., and the expenses, $345,710.86, or 17¼ per cent., while the net earnings have decreased $229,618.93, or 27¼ per cent. The freight earnings increased $163,995.53, the decrease being in the passenger and express receipts and resulting from the opening of the Boston & Maine to Portland and the consequent competition. The operating expenses were 79.84 per cent. of receipts in 1873, against 70.90 per cent. in 1872. The gross earnings were $11,108 per mile, and the net earnings $2,239 per mile in 1873, against $11,541 and $3,359 per mile in 1872.

The passenger-train mileage for the year was 875,643 miles; freight train mileage 354,462 miles; mileage of switching, construction and other trains, 355,124 miles, making the total train mileage 1,585,229 miles. The number of passengers carried was 5,696,351; passengers carried one mile, 75,789,970. The number of tons of freight moved was 586,153; tons moved one mile 20,651,884. The average receipts per ton per mile were 3.17 cents, and per passenger per mile, excluding season-ticket passengers, 2.21 cents, or including season-ticket passengers, 1.83 cents.

The road is equipped with 78 locomotives and 20 snow-plows; 137 passenger and 38 mail and baggage cars; 496 8-wheel and 86 4-wheel box cars and 396 flat cars; 342 coal, gravel and other cars. Four locomotives, four snow plows, seven passenger, three baggage and 342 freight cars were built or bought during the year. Forty-one locomotives and 175 passenger-train cars are furnished with the Westinghouse air brake, and 171 passenger-train cars with the Miller platform and buffer.

During the year 6½ miles of new sidings have been laid and 2,992 tons of iron and 2,507 tons of steel rails have been put into the track. Of the main line from Boston to Portland 43 miles are laid with steel rails. Several new station buildings have been erected during the year and land for extensions of stations has been secured at several points. A new branch line, four miles long, from Swampscott to Marblehead, was built during the year, but not opened until after its close.

The report refers to the contract with the Maine Central and the traffic agreement with the Portland & Ogdensburg, both of which have been heretofore noted. The lands which the company was authorized to purchase in Charlestown for terminal accommodations for the freight traffic have been bought and in great part paid for, and it is believed that no further outlay in this direction will be needed. Arrangements have been made to effect a permanent sterling loan to cover the large expenditures on capital account made during the last two years.

The capital account stood as follows at the close of the two years:

	1873.	1872.
Capital stock issued	$4,997,600 00	$4,262,600 00
Funded debt	6,475,300 00	5,149,500 00
Floating debt, balances due other companies, etc	3,258,193 76	2,298,541 39
Total	$14,731,093 76	$12,710,641 39

Three passengers, five employes and six other persons were killed, and 18 passengers, five employes and 17 other persons injured during the year. Of these only one passenger was killed and two employes injured from causes beyond their own control.

CHICAGO RAILROAD NEWS.

Illinois Central.

A comparative statement of the receipts of the Hyde Park Park trains, by which the Chicago suburban traffic on this road is conducted, made by Mr. France Chandler, the Assistant General Passenger Agent, shows for the past three years the following r sults:

	No. of Passengers.	Receipts.
1871	3 6,350	$34,104 85
1872	382,900	38,580 35
1873	486,319	49,457 21

The average receipt per passenger seems to be a little more than 10 cents. The increase in passengers was about 14 per cent. from 1871 to 1872, and 27 per cent. from 1872 to 1873.

Railroad Track on City Thoroughfares.

The Common Council and the people are once more discussing the question of the removal of the tracks of the Chicago, Rock Island & Pacific road from South Clark street. The question has not been settled yet, and is before the Common Council in the shape of majority and minority reports.

Freights Eastward.

Rail rates, owing chiefly, probably, to the appearance of the

Baltimore & Ohio in the field as a competitor who will not combine, have been pretty well broken for some time, and recently have been down almost to the summer level, grain being 50 cents per hundred to New York. The Baltimore & Ohio, forwarding by steamer from Baltimore to New York, carries at 45 cents per hundred.

Milwaukee & St. Paul.

This company reports decidedly increased business, both in the passenger and the freight departments.

Chicago & Paducah.

This company are making arrangements for the purchase of ground and for the construction thereon of a station building at Streator that shall accommodate both this company and the Chicago, Pekin & Southwestern.

OLD AND NEW ROADS.

Wisconsin Central.

The Governor of Wisconsin has decided to issue the certificates for the remaining half of the land earned, which were withheld by the late Governor.

The company has a bill pending in the Wisconsin Legislature to authorize the construction of the line from Stevens Point to Portage in the most direct practicable line instead of by way of Ripon and Berlin as specified in the original charter. The distance by this line is 114 miles, against 68 miles by the direct line.

The county board of Portage County, Wis., has made a demand on the company for the return of $100,000 in county bonds voted in aid of the road on condition that the line from Portage to Stevens Point should be completed within two years. The time has expired and the road is not yet built.

Toronto, Grey & Bruce.

This company proposes to extend its track from Weston Junction to Toronto, nine miles, and will ask the city of Toronto for a bonus of $100,000 in aid of the work. It now uses the track of the Grand Trunk (a third rail being laid) from Weston to Toronto.

Paducah & Memphis.

The Tennessee Chancery Court has refused to dissolve the injunction prohibiting the collection of a subscription of $200,000 made to the road by Tipton County, Tenn. The ground for the injunction was that the company had not complied with the requirements of the law which provides that before the subscription can be made the Chief Engineer must file a sworn estimate of the cost of grading the road through the county.

Macon & Brunswick.

The Central Railroad Company of Georgia, through its attorney, has addressed a letter to Governor Smith expressing the company's willingness to enter into arrangements by which through tickets can be sold and through freight rates given from points on the Macon & Brunswick to Atlanta and stations on the Central's Atlanta Division. The Central Company is naturally opposed to the construction of the proposed extension of the Macon & Brunswick northward to the Georgia road, which would open a second and competing line from Macon to Atlanta.

Galveston, Houston & Henderson.

Trouble has arisen between this company and the Houston & Texas Central, and the latter has instructed its agents not to sign bills of lading for cotton shipped to Galveston by way of the former road or consigned to its agent in Houston, as has heretofore been the custom. The Galveston, Houston & Henderson Company claims authority under an existing law to run its trains over the Central track, and has given notice of its intention to do so and asked for the appointment of Commissioners to determine the compensation to be paid.

The Houston & Texas Central officers disclaim all intention of discrimination against the other road. The order issued to freight agents directed them to give bills of lading to Galveston without specifying the route and to refuse all bills naming either the Galveston, Houston & Henderson road, or the Houston Direct Navigation Company's line as the route to Galveston.

Leavenworth, Lawrence & Galveston.

The United States District Attorney has filed bills in the Circuit Court against this company and the Missouri, Kansas & Texas for the purpose of testing their title to the lands known as the Osage ceded lands. It is expected that the case will be tried at the next term of the court and the question of title put in a fair way of settlement.

Utah Northern.

The grading on this road is completed to Franklin, 16 miles north of the present terminus, except a heavy fill at Spring Creek. A large force is ready to go to work at this fill and at the tracklaying as soon as the weather permits.

Paris & Decatur.

Trains are now running regularly over the new extension from Paris, Ill., southeast, to Terre Haute, Ind., 19 miles.

New York, Norfolk & Eastern Shore.

The surveys have been completed for this road, which is to extend from a junction with the Eastern Shore Railroad in Somerset County, Md., southward to Cherrystone Inlet, Va., a distance of about 60 miles. The country is almost a dead level and it is said the road can be built with no grades over five feet to the mile and no bridge over 50 feet long.

Baltimore, Chesapeake & Delaware Bay.

The grading of this road is now under contract, and it is said that arrangements have been made for the iron. The line will extend from Harrington, Del., the junction of the Delaware and Junction & Breakwater roads, westward to Queenstown, Md., on Chesapeake Bay. It will be about 35 miles long.

Maryland & Delaware.

A branch about five miles long to Trappe, Md., is to be built, provided Talbot County will subscribe $20,000.

Jamesville & Washington.

This company, which purposes building a railroad from Jamesville, N. C., southward to Washington, has secured an amendment to its charter, authorizing the extension of the road to Raleigh.

Lehigh Coal & Navigation Company.

At the annual meeting in Philadelphia, February 24, the stockholders voted to ratify the contract for the sale and lease of the coal lands and also the contract with the Central Railroad Company of New Jersey for the use and maintenance of the canals and slack water navigation owned or leased by the company.

Pawtuxet Valley.

This road, now under construction, is to extend from River Point, R. I., west by north to Hope Village, and it is proposed hereafter to extend it to Danielsonville, Conn. It is to be leased to the Hartford, Providence & Fishkill, with whose road it connects at River Point.

Pacific Traffic.

For some time past the Central and Union Pacific roads have failed to agree with the Eastern connecting roads on the basis of dividing the receipts from through freight. When the Pacific roads were opened the Eastern roads agreed to accept a rate from Chicago to New York about half as great per mile as that allowed to the Pacific roads. The contract for this division, however, was limited, and has now expired, and the recent competition with the Pacific Mail steamers makes it desirable that the Pacific roads should be able to accept lower than the regular rates when it is necessary in order to prevent the division of traffic. But if the Eastern lines accept a rate less than in proportion to their mileage, a cut rate might leave them very little. Mr. J. C. Stubbs, the General Freight Agent of the Central Pacific, has been in the East and Chicago recently endeavoring to come to some understanding on the matter. Nothing was concluded in New York, but it is reported that a basis was agreed upon in Chicago, and that the companies will work together again.

Owensboro & Russellville.

The name of this company has been changed to Evansville, Owensville & Nashville, by which title the road will be hereafter known.

Sheboygan & Fond du Lac.

The offices of the President and Superintendent have been removed from Sheboygan to Fond du Lac, Wis.

Mercer & Somerset.

Trains are now running regularly over the whole length of this road from Somerset Junction, N. J., to East Millstone. It is attached to the Belvidere Division of the Pennsylvania Railroad and is operated as a branch of that line.

Carolina Central.

Trains on the Western Division now run regularly from Charlotte, N. C., to Buffalo, 54 miles from Charlotte and four miles beyond the late terminus.

Wisconsin Valley.

This road has been extended and opened for business to Junction City, Wis., the junction with the Wisconsin Central Railroad, 13 miles north by east from the late terminus at Centralia. Part of the grading from Junction City northward to Knowlton is completed, and it is intended to have the road open to Knowlton early in the season.

Whitewater Valley.

The connection between this road and the Ohio & Mississippi at North Bend, O., has been completed, and cars run over the latter road into Cincinnati.

The road will hereafter be known as the Cincinnati & Whitewater Valley Railroad.

International & Great Northern.

The new bridge over the Brazos River on the extension to Rockdale is 95 feet above low water mark and 404 feet long, with two spans, one of 150 and one of 254 feet. It is a truss bridge of wood and iron and was built by the American Bridge Company of Chicago.

A bill is pending in the Texas Legislature to settle the controversy between the International Company and the State. The bill provides that the State shall not be liable for subsidy for any extension of the road south or west of San Antonio. The liability of the State for the issue of subsidy bonds to the amount of $10,000 per mile for the road from Jefferson to San Antonio is acknowledged, and the bill directs that the bonds for the road already built shall be issued at once. There is considerable opposition to the bill.

Chicago & Lake Huron.

It is reported that this company has succeeded in placing its bonds in Europe to an amount sufficient to secure the completion of the road from Flint to Lansing, Mich., this year, thus closing the gap between the two sections of the road.

Illinois & St. Louis Bridge.

The Keystone Bridge Company, having secured an amicable settlement of contested claims, are urging the work of erection night and day. The verticals are nearly all in position, and it is expected that the bridge will be ready for railway and roadway traffic early in May.

Easton & Amboy.

The contract for 13 spans of double-track iron bridge has been awarded to the Keystone Bridge Company.

Baltimore, Pittsburgh & Chicago.

A contract for five spans of iron bridge near Defiance, O., has been given to the Keystone Bridge Company.

Baltimore Short Line.

The contract for 20 spans of iron bridges on this road has been awarded to the Keystone Bridge Company, to be completed by September 1.

Illinois, Missouri & Texas.

Work has been resumed on this line from the Mississippi at Cape Girardeau, Mo., westward, and it is expected that trains will be running to the iron works 28 miles from Cape Girardeau by April 1.

Mobile & Northwestern.

A locomotive which was purchased for use on the northwestern end of the road and some iron have been sold at sheriff's sale for debt. Work on the line from the Mississippi opposite Helena, Ark., was commenced nearly two years ago and considerable grading was done, but no iron was ever laid.

Missisquoi & Black Rivers Valley.

This company is reported to have made arrangements for placing a large part of its bonds and preferred stock in London. It has secured a subsidy of $150,000 from the Quebec Government and municipal bonuses amounting to $100,000 more.

Dividends.

A semi-annual dividend of 5 per cent. on the stock of the Chicago, Burlington & Quincy Railroad Company has been declared and will be payable March 16.

A dividend of $1 per share on the stock of the Salem & Lowell Railroad Company has been declared, payable on demand.

The regular quarterly dividend of 1¾ per cent. on the guaranteed stock of the Cleveland & Pittsburgh Railroad Company was paid March 2.

The New York & Harlem has declared a dividend of 2 per cent., payable April 1, from the profits of the Fourth avenue street railroad, which is now the only property which it works. Transfer books will close March 2 and be reopened April 2.

Jacksonville & St. Augustine.

It is stated that the charter for this road has been transferred from the original incorporators to a new company, and that subscriptions to the stock amounting to $300,000 have been made. The company is making arrangements to commence work on the road, which will be about 40 miles long, from Jacksonville, Fla., south by east to St. Augustine.

An Extraordinary Drawbridge.

A correspondent of the Detroit *Tribune* says that Mr. G. Sticklesteel, of North Branch, Mich., has patented a drawbridge which consists of an iron bridge built on wheels or friction rollers entirely on one side of the stream to be crossed. The train of cars is run upon this bridge and so attached to it that the motion of the driving wheels of the locomotive sets the bridge in motion and carries it over the stream on abutments arranged for that purpose, thus leaving the stream entirely clear of the bridge except when the same is crossing.

Coffee on Trains.

The Cincinnati *Commercial* says: "Coffee is a well known antidote for poison, but it has been left for the management of the Ohio & Mississippi Railroad to administer it to railroad travelers as an antidote for the pies and things (plays) sold by train boys. Travelers on the through trains of this road are now furnished with a mug of good coffee by persons who run on the trains and stand prepared to supply the article, fresh and good, upon call from passengers."

Gulf, Colorado & Sante Fe.

A meeting of the directors is to be held shortly to consider an offer from a firm of contractors to build the first 50 miles of the road on condition that Galveston County will subscribe $500,000 in bonds and private subscriptions to the amount of $500,000 more are secured.

Austin & Pacific Short Line.

This company was recently organized at Austin, Tex., under a charter from the State. The road is to extend from Austin northwest to a connection with the Texas & Pacific, and will have a land grant of 16 sections per mile from the State.

Cumberland & Point Pleasant.

It is proposed to build a railroad some eight miles long from Cumberland, O., eastward to the Marietta, Pittsburgh & Cleveland road at Point Pleasant.

Cincinnati Southern.

The bids for the bridge over the Kentucky River near Pleasant Hill, Ky., have been opened but no award has yet been made. Nine bids were received, one for a suspension, the rest for truss bridges. The bridge will be 275 feet above low water mark, and will, as far as we are informed, be the highest bridge in America. There is said to have been differences of $100,000 in the bids.

Work on the King's Mountain tunnel is carried on night and day. On the section from South Danville to Chitwood there are eight tunnels and some heavy trestle work, including two in Sloan Valley, one of which is 840 feet long and 108 feet high, and the other 780 feet long and 133 feet high.

New Mail Route.

Mail service has been ordered over the new Portsmouth & Dover Railroad, from Dover, N. H., to Portsmouth, 12 miles.

Meetings.

The annual meeting and election of the Panama Railroad Company will be held in New York, April 5. The transfer books are closed from March 5 to April 7.

A meeting of the stockholders of the Memphis & Kansas City Railroad Company is to be held in Hopefield, Ark., March 20.

Long Island.

It is reported that the Central Railroad Company of Long Island is making arrangements to purchase a controlling interest in the Long Island Railroad.

New York & Oswego Midland.

A meeting of the bondholders was held in New York, March 3, to receive a proposition from the receivers to take up the floating indebtedness of the company. The proposition was taken into consideration, but no definite action was taken.

Several of the strikers who obstructed the road at Summitville have been brought before the United States Court under whose orders the receivers act, and punished for contempt. The men claim that the receivers' certificates with which they were paid are worth nothing to them as they cannot sell them, and are consequently left destitute, but as the receivers have no money and are not making enough to pay expenses it is not easy to give anything better. The road continues to be watched by United States deputy marshals, by order of the Court, but there have been no more disturbances.

Illinois & St. Louis Bridge.

The stockholders have authorized an issue of $3,000,000 third-mortgage 7 per cent. gold bonds having 12 years to run from March, 1874. Of these bonds $2,000,000 are offered to the stockholders, *pro rata*, at 60 and interest. The proceeds are to be used to complete the bridge and the eastern approaches. It is stated that $1,250,000 have been already subscribed for. The contractors state that the bridge can be completed by May 1.

New Jersey Southern.

The committee of the New Jersey Legislature to investigate the affairs of this company has examined a number of witnesses, including Jay Gould, late President and other officers of the company. No new facts have been brought out by the investigation, though it is apparent that the road has been managed in an extravagant and careless manner. The lease of the Long Branch & Sea Shore road to the New Jersey Southern has expired, but no arrangements have been made to renew the lease, though the New Jersey Southern trains continue to run over it.

La Crosse Bridge.

A bill has been introduced in Congress to authorize the Milwaukee & St. Paul Company to build its bridge over the Mississippi near La Crosse, Wis.

Delaware, Lackawanna & Western—Morris & Essex Division.

Work is progressing on the new tunnel through Bergen Hill, N. J., and is to be pushed forward steadily. The contractors have commenced the erection of a trestle bridge over the Erie tracks at the west end of the tunnel.

Rensselaer & Saratoga.

The slate producers of Rutland County, Vt., and Washington County, N. Y., have presented a memorial to the lessees of this road, the Delaware & Hudson Canal Company, asking for a lower and uniform tariff on slate, suggesting $16 per carload from all points of production to Albany or Troy as a fair rate. During 1873 the slate shipments over the road amounted to 3,150 car-loads, and the cars engaged in this business have generally loads in both directions, returning from Troy or Albany loaded with coal.

Stockton & Ione.

This road is intended to run from Stockton, Cal., northwest to Ione City in Amador County, and will be about 40 miles long. In addition to the local traffic it is expected to furnish transportation for the lignite coal beds of Amador County. Four lines have been surveyed for the road, and its estimated cost with equipment is about $525,000. The maximum grade required will be 52.8 feet to the mile; there will be no tunnels needed, and only one bridge of any size, that over the Mokelumne River. The capital stock of the company is $500,000, and it is proposed to issue bonds to an equal amount. The road is to be of 3-feet gauge.

Rockford, Rock Island & St. Louis.

A meeting of the stock and bondholders was held at the office of the Union Trust Company in New York, February 26,

to consider the proposed plan of reorganization. After a long discussion a committee, consisting of James Abbott, Charles W. Hassler, W. B. Cutting, J. de Neufville and Edward King, was appointed to investigate the matter and report hereafter.

Nashua, Acton & Boston.

The creditors of this company are endeavoring to have the company put into bankruptcy. The whole indebtedness is stated at about $400,000, most of which is covered by bonds issued in 1872. The business of the road is improving, and the company hopes to be able to meet all claims if allowed time.

Gilman, Clinton & Springfield.

A meeting of the supervisors of counties holding stock in the company was held in Clinton, Ill., February 20. No decisive action was taken, there being much diversity of opinion. A statement submitted showed that the net earnings last year were insufficient to meet the interest on the bonds, and that if some provision is not made soon to meet the interest the mortgage will be foreclosed.

Peachbottom.

The grading of the Eastern Division of this narrow-gauge road is now completed from Oxford, Pa., west to the Susquehanna River. The track is laid 10 miles west of Oxford and work is progressing as fast as the weather will permit. On the Western Division, from the Susquehanna westward, 33 miles of grading is completed and work is progressing on the remaining seven miles.

Parker & Karns City.

This road is now completed and in operation from Parker City, Pa., on the Allegheny River, to Petrolia, about six miles. The remaining four miles to Karns City is nearly completed. It is of 3-feet gauge.

Green Bay & Minnesota.

The city of Winona, Minn., has voted by a large majority against the proposed issue of $50,000 in bonds as a bonus to this company. This bonus was originally raised by private subscription, with the understanding that the sum should be repaid by the city as soon as the necessary authority could be obtained. Previous to the election the company offered to accept $35,000 in cash in lieu of the bonds and to release those subscribers to the bonus from all claims.

Erie.

The strike of the freight brakemen on the western part of the line, which at one time assumed pretty serious proportions, has been ended by a compromise. The strike was caused by an order to discharge one brakeman from each freight crew, leaving only three on a train. There was also some question as to increase of pay. For two days all trains were stopped at Hornellsville, only the engine and mail car from the mail trains being allowed to pass. The company finally agreed to withdraw the obnoxious order and leave four brakemen in a crew, as heretofore, but no increase of pay was given.

The switchmen on some of the divisions struck at the same time, for the reason that their pay had been reduced, and the company also proposed to charge them rent for the shanties along the line in which many of them live.

At a meeting of the Executive Committee in New York, February 25, it was announced that the managers of the company's London agency had been removed and B. C. Stephenson, late Secretary of Lloyd's, and P. A. Pincoffs, late of the London Bank of Commerce, appointed managers in their place.

St. Croix Land Grant.

Both houses of the Wisconsin Legislature have passed the bill to give that part of the St. Croix land grant intended to aid in the construction of a line from St. Croix to Bayfield to the North Wisconsin Company, the Chicago & Northern Pacific Air Line Company to have the land granted for a line to Superior. The North Wisconsin Company has now 14 miles of road in operation from the West Wisconsin three miles east of Hudson northeast to New Richmond. The Chicago & Northern Pacific Air Line is intended to run from Chicago to Superior, and some grading has been done on it in southeastern Wisconsin.

International & Great Northern.

The rebuilding of the old Houston Tap & Brazoria Railroad has been completed from Houston, Tex., southward to Sandy Point, 27 miles, and trains are running over that section. It is expected that the whole line to Columbia, 50 miles from Houston, will be in order by April 1.

Delaware Shore.

The necessary amount of stock has been subscribed and surveys are to be commenced at once. The road is to run from Camden, N. J., southwest along the river shore to Pennsgrove, and eventually to Salem.

New York, Providence & Boston.

This company and the Stonington Steamboat Company have begun suit against the Old Colony Railroad Company and the Narragansett Steamboat Company for breach of contract in regard to a fixed tariff of freight rates and division of surplus profits. The former companies' lines form part of the Stonington line from New York to Boston, the two latter companies owning the Fall River Line between the two cities. The defendants allege that the contract was first broken by the plaintiffs.

Valley, of Virginia.

A train was to run through to Staunton, Va., March 3. Staunton is 25 miles from Harrisonburg and 10 miles beyond Mount Sidney the last point noted.

The question of the location of the depot at Staunton has not been settled, though the company has secured the necessary property.

Work on the grading through Rockbridge County below Staunton is to be pushed forward, the contractors having received orders to that effect.

Old Colony.

A bill is before the Massachusetts Legislature to incorporate the Old Colony Steamboat Company to run a line of steamboats from Newport or Fall River to New York, and also to run steamboat lines on Vineyard Sound in connection with the Old Colony Railroad. The latter company is to have a large interest in the steamboat company. It is said that the railroad company is not satisfied with the present management of the Narragansett Steamboat Company, which now owns the line from Fall River to New York.

Wheeling & Lake Erie.

The Wheeling (W. Va.) *Intelligencer* says that the Baltimore & Ohio Company has made a proposition to grant this company the use of its bridge over the Ohio at Bellaire, four miles below Wheeling.

Work has been commenced on some heavy grading near Hopedale, O. It is expected that work on the grading will be pushed forward during the coming season.

Northern Central.

At the annual meeting of the stockholders held in Baltimore February 26, the report of the directors was presented. The committee to confer with the Pennsylvania Railroad Company as to a lease reported that they had judged it best to wait until they could present a statement of the business of the past year, and that since that statement has been obtained the time has been too short to take any action in the matter. It was resolved to postpone the election of directors to April 9, and the meeting accordingly adjourned to that date.

West Jersey.

New and heavier rails are being laid from Glassboro, N. J., to Millville, 22 miles.

Atlantic, Mississippi & Ohio.

A resolution has been agreed to by the Virginia Senate directing the appointment of a committee to examine into the affairs of the company and to enquire whether the company is bound to build the Cumberland Gap Extension within a specified time, and within what time. Also, whether the company is not bound to devote a part of the authorized loan of $15,000,000 to the construction of the extension.

The company has offered to build a branch from Christiansburg, Va., north 10 miles to Blacksburg, provided Montgomery County will subscribe $70,000.

Lehigh Valley.

The Philadelphia *Ledger* says that Messrs. Drexel & Co. have recently sold in London £1,000,000 ($5,000,000) of the bonds of this company, the applications therefor largely exceeding the amount of bonds to be disposed of.

Toledo, Wabash & Western.

This company has given notice that passenger fares on its line are to be reduced to three cents per mile from March 1.

Fredericksburg & Gordonsville.

The directors of this company have held several meetings lately to make arrangements for the completion of the road, but no definite action has been taken. This is the original company which first commenced the construction of the road, and was afterward succeeded by the Fredericksburg, Orange and Charlottesville Company, which was set aside by the Virginia Board of Public Works a few months since, having failed to complete the road according to the terms of its charter.

Chesapeake & Ohio.

Since the completion of the Church Hill Tunnel and the line to the wharves at Richmond the through business of this road has been steadily increasing. Considerable shipments are being made from Cincinnati through to Philadelphia and New York, going from Richmond to the latter places by steamers.

The Illinois Central Report.

The annual report for the year 1873 has been published. Below we give in full the directors' report, the President's report, and a summary of some of the statements in the other parts of the report:

DIRECTORS' REPORT.

It is well known to the shareholders that the policy of the board has, for many years, limited as much as possible the outside engagements of the company, and applied the proceeds of the land strictly to the extinction of the mortgage debt. The directors have the satisfaction to report that, with the exception of $3,074,000 bonds which the company is prepared to pay upon presentation, the original construction debt of $17,000,000 has been redeemed. The balance becomes payable April 1, 1875. The company offers a premium upon bonds presented prior to the 1st of July next. The redemption of these bonds leaves only $5,000,000 of debt, bearing 6 per cent. interest, namely: $2,500,000 due April 1, 1875, and $2,500,000 due April 1, 1890. The share capital is now $25,500,000 of full paid shares, and $1,750,000 half-paid shares, upon which the remaining installment of 50 per cent. falls due on the 1st of August next.

The debt and share capital combined do not express the full cost of the property, and it should be noted that upon the plan of making up the construction accounts followed by most railways, our charge to construction expenses would be considerably increased, owing to the fact that, during the last ten years, extensive improvements and additions have been made to your property which might thus have been charged to capital account, but have been included among the working expenses. Your directors are satisfied that, if these were included, the cost of the property at the close of 1873, might be fairly stated at about $37,000,000.

The traffic of your railway was interrupted in the year 1872 by the extraordinary demand for vessels on the lakes, engaging an important share of the tonnage for the transportation of iron ores. The difficulties of that year rendered it imperative that the control of an independent outlet for our traffic should be obtained. Your board had previously requested three of its members to visit the south to report upon the condition of the railways to New Orleans and Mobile, thus recalling the original design of the General Government in conferring grants of land upon the States of Illinois, Mississippi and Alabama, for the purpose of securing railway communication from the lakes to the Gulf. These directors found that with an outlay of about $6,000,000, the direct connection from Cairo to New Orleans could be completed and the older portions of the line renewed. The board endeavored to accomplish this result with the least outlay, and secured a practical working agreement with the New Orleans, Jackson & Great Northern and Mississippi Central railroad companies, providing for a division of traffic by mileage with these two railways to New Orleans, thus constituting the shortest practicable route (only one-tenth longer than the geographical distance), saving twelve hours' time between St. Louis and New Orleans, and eighteen hours between Chicago and New Orleans over the previous communications by rail.

A small share of the immense commerce of the interior rivers of this continent which fall into the Mississippi River at Cairo will amply support the railways south of Cairo, which, with imperfect means and insufficient equipment, have earned for three years past a surplus beyond the interest on their mortgages. The railway connection at Cairo was only completed the last day of the year, hence their net traffic, which amounted to $1,543,028.32 in 1873, was derived from their local resources alone.

The entire bonded debt of the two companies is $16,000,000. The interest on this debt, being $1,200,000, is quite within the net traffic of the lines. Your board, at the request of the shareholders, at the last annual meeting engaged to purchase $6,000,000 of these bonds by accepting annually tenders, if made, to the extent of $200,000 per annum at par. With this engagement the Southern companies were able to negotiate their bonds. Subsequently $5,000,000 of the Southern bonds, with our engagement to purchase attached, bearing 7 per cent. interest in gold, were offered in even exchange for £1,000,000 of our 5 per cent. bonds of £200 each. Your Board promptly accepted this offer, and have engaged that in any future mortgage that may be placed upon your property, this issue of 5 per cent. bonds shall be incinded, limiting the mortgage, when made, to $15,000,000. It is also agreed that this company shall retain the $5,000,000 of the 7 per cent. Southern bonds, and appropriate the interest therefrom to a fund to meet the interest and redeem the principal of our bonds. Two per cent. per annum, gained by the exchange, applied in this way, establishes the sinking fund to retire all the 5 per cent. bonds before maturity, and will then leave the $5,000,000 of Southern bonds in your treasury, free of cost.

Our traffic has suffered for several years by the diversion of grain to the East direct by rail over the extensions of the Pennsylvania and New York systems of railway, and as these railways are perfecting and increasing their facilities for direct transportation, we have considered carefully the sources of income to which we may look for the future in substitution for this partial diversion of the grain business hitherto controlled by the cheaper water communication via the lakes.

The result of railway enterprises in the Western States is in direct ratio to their gain in population and wealth. The State of Illinois conspicuously leads the Western States in numbers and resources. The population in 1870 was 2,539,891. There were 19,000,000 of acres of improved farms.

When our railway was projected across the open prairie to the timber lands of Southern Illinois, there were still Government lands open to purchase at 12½ cents per acre. The valuation of real and personal estate in Illinois in 1850 was $156,265,006. Only twenty years had elapsed, and in 1870 this valuation, as shown by the Government report, had advanced to $2,121,180,579.

Your directors believe that the development of the manufactures of Illinois will, within a few years, show a more remarkable progress even than has been obtained from the cultivation of its soil. The coal measures of Illinois are said to cover an extent of 19,000 square miles. This abundant supply of coal is near at hand to the inexhaustible iron ores of Lake Superior and of Missouri. Already the transportation of coal, of iron ore and of manufactured products are important sources of revenue. The manufactures of Illinois, so insignificant in 1850 (only $16,534,272), are stated in the ninth census (1870) at $205,620,672.

Your directors look hopefully to the future of this property, and believe that the time has arrived to adopt a bolder policy in forming alliances with other lines to reach the larger interior towns of the State, which seem to be destined, in the next decade, to become the centers of manufacturing districts.

The directors will comply with the request of the shareholders and appoint an officer of the company, resident in London, authorized to issue provisional receipts for shares sent to that office for transfer.

By order of the board. L. A. CATLIN, Secretary.

NEW YORK, Feb. 6, 1874.

PRESIDENT'S REPORT TO THE DIRECTORS.

During the first nine months of 1873 the earnings of the whole line exceeded those of the corresponding months of 1872 $380,949.76.

An abundant harvest of wheat gave promise of larger traffic and earnings for the last three months, but the financial panic supervening about the last of September caused a temporary suspension of traffic, and largely diminished the receipts of the last quarter. Notwithstanding this drawback, the advantages due to a larger supply of vessels, and consequent lower freights on grain from Chicago to the seaboard, and a reduction in working expenses for the last quarter, enable us to show a gratifying increase in net earnings over those of 1872.

The gross earnings of the line in Illinois were $6,591,024.64, and the net, $2,412,549.56, a decrease of $22,408.43 in gross, and an increase of $266,701.82 in net earnings, as compared with 1872.

The Iowa leased lines earned, gross, $1,677,300.54, and deducting working expenses $850,207.69, taxes $56,000, and rent $652,751.85, yield to this company $118,341.00 net, which is an increase of $263,979.83 in gross, and $161,081.91 in net earnings, compared with 1872.

The total gross earnings were $8,268,325.18, and the net, $2,530,890.56, an increase of $427,783.73, or 20 34-100 per cent. in net earnings, as compared with 1872.

The Land Department holds $1,188,563.39 of uncollected notes, and 325,171.93 acres of unsold lands. The total sales have been 2,269,828.07 acres; 2,083,718.36 have been conveyed to purchasers; leaving 186,109.71 acres sold, not deeded. The sales in 1873, were 23,580.33 acres, for $204,644.29, and contracts for 4,384.27 acres sold previously were canceled for nonpayment.

The net collections from donated lands for the year were $468,429.19, of which $290,000 was added to the construction bond fund. The balance, $178,429.19, with $151,421.93 derived from interest, added to $2,530,890.56, net earnings of the railway, gives $2,860,741.68, from which $558,437.12 paid for interest and exchange, leaves $2,302,304.56 for division to shareholders. Five per cent. paid August 1, and four per cent., declared payable February 2, is $2,293,970.

Our Southern connection, the Mississippi Central Railroad Extension, was opened for traffic on the 24th of December last. It gives this railway the shortest route from the Northwestern States to New Orleans and Mobile, and to the cotton region east of the Mississippi River. Passenger cars are now run through between Chicago and St. Louis and New Orleans, and freight cars can be interchanged with all lines in the Southern States. This traffic, now fully inaugurated, will afford a large addition to the revenues of the company.

By the extension of the Cincinnati & Lafayette Railway to Kankakee, this road, between that station and Chicago, has become a part of the best and most direct route between the cities of Chicago and Cincinnati. A running arrangement, made with the Cincinnati line, is proving mutually advantageous and profitable. All similar arrangements existing with other companies at the date of the last annual report have been continued with beneficial results.

The total charges to permanent expenses for the year in Illinois and Iowa were, $502,496.06. New improvements were made at Cairo, to facilitate the transfer of cars to the Southern line, at an expense of $99,488.51. At Chicago, a new dock, 236 by 1,000 feet, has been completed, and an addition of 91,298 square feet of land was made in the Lake opposite Madison street, to enable us to give the Michigan Central Company possession of the land leased them in 1872. Additional sidings and other improvements have been made. 4,645 tons of steel rails were used in renewals, and the excess in cost over iron rails was charged to permanent expenses. About sixty eight miles of the road is now laid with steel rails. It is proposed to relay with steel rails as renewals are needed all the track now laid with iron rails between Chicago and Gilman, Carbondale and Cairo, Forreston and Dunleith, and several shorter sections in Illinois, and between Dubuque and Farley, in Iowa; in all, about 230 miles. To do this will require 22,000 tons of steel rails in the next three years.

The Common Council of Chicago have now under consideration the question of transferring to the Illinois Central, the Michigan Central, and the Chicago, Burlington & Quincy Railroad Companies the interest of the city in the lake front and east of Michigan avenue, and between Randolph and Monroe streets, for a passenger station. If this conveyance is made this company will be required to pay the city $200,000, our share of the balance due for the land, and from $50,000 to $100,000 more will be required this year to commence the erection of a depot. JOHN NEWELL, President.

CHICAGO, Feb. 2, 1874.

The property owned by the company consists of the line from Chicago south by west to Cairo, 365 miles, and that from Centralia, north of Cairo, north to La Salle and thence northwest to Dunleith, 342 miles; and besides this 707 miles of railroad the equipment with which it and the 402 miles of leased line in Iowa is worked. It works 1,109 miles of railroad.

The equipment consists of 197 locomotives, 166 passenger-train cars (80 first-class coaches, 7 smoking, 1 officers', 1 pay, 47 baggage, mail and express, 18 sleeping and 12 old coaches),